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## Autism Spectrum Disorder Students: A Survey of Rural Community College Educators

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**AUTISM SPECTRUM DISORDER STUDENTS: A  
SURVEY OF RURAL COMMUNITY COLLEGE EDUCATORS**

by

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## **ABSTRACT**

### **AUTISM SPECTRUM DISORDER STUDENTS: A SURVEY OF RURAL COMMUNITY COLLEGE EDUCATORS**

Pamela Hanks  
Old Dominion University, 2020  
Director: Dr. Mitchell R. Williams

The number of students diagnosed with autism in public schools is increasing and this special population is now enrolling in colleges and universities. At the K-12 level, numerous supports are provided consistent with federal law; equivalent supports are not required in the postsecondary classroom. Student success often depends on the relationships built in the academic setting. From an instructional perspective, faculty members may have little or no training, limiting their understanding and support of this growing population of students, complicating relationship building. There is a dearth of literature available on the effective training of community college faculty who work with the ASD students.

A quantitative survey instrument, designed as a part of the study, was utilized to gather data from community college faculty members. The findings indicate that although faculty are knowledgeable of ASD characteristics, they are not comfortable reporting that they can identify a student with ASD. Additionally, full-time community college faculty members are more knowledgeable in their pedagogical practices to support ASD students than are part-time faculty members.

Community college leaders may use the quantitative instrument designed in this study to determine if faculty members are competent in their knowledge, recognition, and pedagogical practices to support ASD students in the classroom. More research exclusive to ASD student success at community colleges is needed to provide leaders with information to help this underserved population of students.

*Keywords:* Autism Spectrum Disorder, community college faculty development, professional development, and universal design for learning

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This dissertation is dedicated to my dear son, Keaton, who always pushes me to be a better person and advocate for all who do not have a voice.

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## **CHAPTER ONE**

### **INTRODUCTION**

Higher education students diagnosed with Autism Spectrum Disorder (ASD) often have underdeveloped social skills and exhibit atypical behaviors which are often misunderstood by faculty (Grant & Nozyce, 2013). The National Center for Education Statistics (NCES) found ASD students are enrolled in 70 percent of public community colleges (2011). Also, more than 80 percent of ASD college students have enrolled in a community college sometime after high school graduation (Wei, Christiano, Yu, Blackorby, Shattuck, & Newman, 2014). Historically, community colleges were funded based on enrollments, tuition, and fees (Mullin, Baime, & Honeyman, 2015; Vaughan, 2006). Currently, accountability of retention and completion of a credential, certificate, or degree is tied to performance-based funding for the majority of community colleges in the United States (Mullin et al., 2015). The pressure on community colleges to move all students toward completion and success, increases the institution's need to respond to the higher level of support required by ASD students (Austin & Peña, 2017; McKeon, Alpern, & Zager, 2013).

To be qualified for teaching positions in higher education institutions, professors must specialize in content specific areas. The majority of these professors do not complete non-required formal education courses providing instruction on classroom teaching and learning practices (Moriña, Cortés-Vega, & Molina, 2015). One result of this lack of educational training is little or no recognition, understanding, or support of the ASD student in the postsecondary setting (Gobbo & Shmulsky, 2012). Due to this lack of specialized educational training, relationship building, the main factor Colclough (2017) noted as necessary for college success, may be compromised.

Students with ASD may also have co-occurring conditions along with their ASD diagnosis. These conditions might include attention deficit hyperactive disorder (ADHD), depression, social anxiety, bipolar disorder, and panic disorders (Jackson, Hart, Brown, & Volkmar, 2018). Often, ASD students experience multiple co-occurring conditions. In addition, many ASD students need social and behavior supports not typically included in the classroom accommodations provided by the college (Jackson et al., 2018). The need to understand the ‘whole’ ASD student along with the social and mental health issues they bring into the classroom is vital.

### **Background of the Study**

Autism Spectrum Disorder is a condition that affects the brain’s development in social communication, social interaction, and behavior (Adreon & Durocher, 2007). The number of students diagnosed with ASD in K-12 public schools increased significantly from 2005 to 2014 (U.S. Special Education Enrollment, 2016). Though Zablotzky, Black, and Blumberg (2017). stated no statistically significant changes occurred in ASD diagnoses from 2014 to 2016, the majority of this population is now enrolling in community colleges (Highlen, 2017). Most faculty members have little or no formal classroom training, limiting their understanding and support of ASD students (Gobbo & Shmulsky, 2012). The mission of the community college encourages all who can learn to attend, including ASD students (Lang, 2006). With support from faculty members who receive effective professional development, ASD students can increase their success (Moriña & Carballo, 2017).

The college classroom environment presents many potential challenges for the ASD student who may have sensory issues to lighting (fluorescent lights), smells (board markers), and sounds (talking in the halls) (Gobbo & Shmulsky, 2012). Not only do physical surroundings

create complications for the ASD student, the social environment in the classroom also creates numerous challenges. Many ASD students have difficulty communicating due to ineffective social skills such as difficulty reading facial expressions and interpreting non-verbal cues (Gobbo & Shmulsky, 2012; Williams, 2016). ASD students may not understand abstract concepts, idioms, jokes, or sarcasm (Adreon & Durocher, 2007; Williams, 2016). Additionally, ASD students are literal thinkers and focus on narrow topics (Gobbo & Shmulsky, 2012; Williams, 2016). Repetitive behaviors such as hand flapping (Adreon & Durocher, 2007) and reading aloud questions from a test or assignment may make ASD students stand out, as well as create distractions for others sitting around them (Zeedyk, Tipton, & Blacher, 2016). It is essential for educators to realize ASD is a neurological disorder that affects the decision making and response process based on how the ASD student's brain interprets events (Williams, 2016). As a consequence, the ASD student may exhibit unexpected behaviors in the classroom that are not by choice (Williams, 2016).

Brown and Coomes (2015) conducted a mixed methods study to investigate best practices to support ASD students in two-year colleges. The research sample consisted of 146 Directors of Disability Services at two-year colleges in the United States. Although the information presented in the Brown and Coomes (2015) study extended the literature on best practices to support ASD students, the authors did not note if participating two-year colleges are specifically community colleges nor did they survey faculty members. The results of the study indicated the need for specifically targeted services, including social supports to be implemented to aid the ASD student.

Cai and Richdale (2016) conducted semi-structured focus groups with autism spectrum disorder (ASD) students and their families from six different higher education institutions. The



researched sample size consisted of 23 ASD students and 15 family members. Each ASD student and family member completed survey questions and participated in focus groups. Five themes emerged from the coded data: (1) core ASD features, (2) comorbid conditions, (3) transition, (4) disclosure, and (5) support services. The authors noted the need for students to disclose their disability along with registering with disabilities support services to receive educational assistance and social support. The outcome of the study found family members were dissatisfied with the lack of educational and social accommodations for their ASD student.

A significant body of literature exists on how to accommodate the ASD student in the classroom (Adreon & Durocher, 2007; Cai & Richdale, 2016; Gobbo & Shmulsky, 2012; Williams, 2016), but Moriña and Carballo (2017) noted that although curriculum has been developed to provide professional development, many institutions do not take advantage of it. Moriña and Carballo (2017) conducted their study with faculty at four-year institutions, investigating the need to provide professional development and assess the usefulness of the training. Also reported in the study was the need to make content accessible immediately to the professors and not wait until a disabled student enters the classroom. Brown and Coomes (2015) concur that faculty must be educated on what to expect when an ASD student is present in the classroom prior to the student showing up on the class roster. Additionally, professors with no prior experience with an ASD student were unable to understand the reason for modifications to coursework and assignments (Taylor, 2005). These professors also noted accommodations provide an unfair advantage to the students receiving the accommodations over others who do not. To ensure all faculty and staff are prepared, professional development should be obligatory as opposed to voluntary to ensure students' needs are met the first day on campus (Brown & Coomes, 2015).

Previous studies involving university faculty as participants (Brown & Coomes, 2015; Murray, Lombardi, Wren, & Keys, 2009) show that although curriculum has been developed to provide professional development to support ASD students in the classroom, no sessions or evaluations to check validity or reliability were instituted (Moriña & Carballo, 2017). Brown and Coomes (2015) supported the finding of the lack of professional development in their study using questionnaire data from two-year colleges. The authors revealed that 95 percent of all professional development conducted, was done exclusively through one-on-one meetings and only when the professor was notified an ASD student was enrolled in their classroom.

Students with ASD graduate at lower rates from college than all other students with disabilities except those with intellectual disabilities (Gobbo & Shmulsky, 2014; Shattuck, Narendorf, Cooper, Sterzing, Wagner, & Taylor, 2012). One way to improve upon this low rate of graduation is for college educators to direct students who are not identified but display characteristics of ASD to disability services to discuss possible accommodations (Francis, Duke, Brigham, & Demetro, 2018). In order to identify these students based on characteristics of ASD, educators must not only be trained to recognize the ASD characteristics, but also be trained to make academic adjustments to accommodate these students (Zeedyk et al., 2016). Zeedyk, Tipton, and Blacher (2016) noted essentially no literature was found on the effective training of faculty who work with the ASD students in the classroom. This lack of literature is surprising due to the emphasis on best pedagogy practices by community college faculty who take students often times not ready for four-year colleges and universities and transform them into academically ready students and citizens (Mellow & Heelan, 2008). If there is to be an improvement in ASD students' graduation and success rates in community college, the time to respond is now. As was noted by Wei, Christiano, Yu, Blackorby, Shattuck, & Newman (2014),

80 percent of ASD college students have enrolled in a community college sometime after high school graduation and the chances of a professor having an ASD student enrolled in their classroom is very high.

Due to the lack of peer-reviewed literature focusing exclusively on community college professors training to assist ASD students, this study was designed to collect descriptive data. The data collection process focused on identifying community college professors' knowledge of ASD, classroom practices these professors use that may assist ASD individuals, and perceptions of the professional development necessary for community college professors to aid in helping ASD students find success.

### **Purpose Statement**

The purpose of this study was to explore community college faculty members' knowledge of ASD students and the classroom practices utilized that may provide support for ASD students. This study will also help to advance the understanding of the type of professional development most effective to improve ASD students' success in college as perceived by community college faculty members. Academic clusters were evaluated to determine if differences exist in ASD recognition, classroom practices, and perceived professional development between certain subgroups of faculty members.

### **Research Questions**

This study was guided by the following research questions:

1. To what extent do faculty members think they can recognize students with ASD in their classrooms?
2. What pedagogical practices do community college faculty members utilize that may support ASD students?

3. What type of professional development do community college faculty members perceive may best help them to support ASD students?
4. How do faculty members differ in their ASD recognition, classroom practices, and professional development preferences based on academic discipline, gender, years of experience, and employment status?

### **Professional Significance**

Students with ASD usually ‘stand out’ in the classroom because of their unusual communication and social behaviors (Grant & Nozyce, 2013). The examination of faculty perceptions pertaining to ASD communication patterns and non-verbal behaviors in the classroom may provide valuable insight into their instructional practices. The present study sought to identify the practices necessary for community college faculty members to recognize and promote success for ASD students in the classroom. The collection of quantitative data may provide information needed to establish best practices for community college faculty. As students are provided with accommodations specific to their individual learning styles, they will begin to feel more comfortable, thus increasing their success and retention (Gobbo & Shmulsky, 2012; Williams, 2016). As professors are provided with information and tools to make effective adjustments to content, delivery of content, and classroom environments, they will become more proficient in recognizing and aiding ASD students (Francis et al., 2018). Additionally, the findings may reveal information needed to develop and implement professional development, specific to the needs of community college professors to identify, understand, and support ASD students. With professional development designed specifically for community college professors, ASD students may ultimately experience successes, including higher completion rates at the community college. Finally, examining differences between academic clusters as

suggested by McKeon, Alpern, and Zager (2013) in their study, could reveal that some groups have less knowledge of ASD students than others.

This study also adds to the literature for community colleges due to the gap in literature exclusive to ASD student support by community college faculties. Additionally, Peña (2014) postulated the need for increased research and publication of this research to first-rate peer-reviewed journals to inform educators of pedagogical practices and strategies to best support ASD students. Moreover, this study will inform college presidents, vice presidents of academic affairs, student services personnel, various college leaders, and professional development trainers of the needs of faculty members who have ASD students in their classrooms. Finally, researchers who examine issues related to ASD may find the information beneficial.

### **Overview of the Methodology**

Data collection restricted to community college professors' practices and their knowledge of ASD students in the classroom has not been conducted to date. The collection of a large amount of data is necessary to thoroughly measure community college professors' knowledge of ASD, the classroom practices utilized to promote success, and the type of professional development most effective to support ASD students. Because ASD students are attending the community college campuses in large numbers, identifying best practices for faculty, establishing these practices, and potentially launching professional development needed to be completed with a sense of urgency. Since the intent of this research study was not to control or experiment but to gather information about the community college faculty experiences with ASD individuals in the classroom, using a quantitative survey instrument seemed most appropriate (Creswell & Miller, 1997).

The three community colleges chosen to participate in this study were located in Virginia and were selected due to their size (small and medium institutions) and rural location. Fowler (2009) suggested that rural institutions provide higher response rates to surveys than other areas. The quantitative survey was distributed to faculty members at the three institutions over a fourteen-day period beginning in late September 2019.

A cross sectional study was employed. The target population of the questionnaire was all full-time and adjunct professors actively teaching at three of the 23 community colleges in the Virginia Community College System (VCCS). An email inviting professors to participate along with incentives to participate was sent in fall 2019.

The questionnaire was self-administered through the Qualtrics survey platform. An email was transmitted in late September guaranteeing anonymity and inviting professors to participate in the survey. Four demographic questions included were primary area of instruction (academic cluster), number of years teaching experience, gender, and employment status (full-time or adjunct). The respondents then answered 15 questions on their knowledge of ASD using a three-point Likert-type scale. The survey was then locked, prohibiting backtracking and changing answers by respondents. A short definition of ASD was provided to all respondents. Next, two sets of questions totaling 21 were formatted with four-point Likert-type scales, requesting responses to statements about pedagogical practices and professional development preferences. Finally, the response to the last item asking faculty members if they can recognize an ASD student in their classroom served as the concluding question. This question was formatted using a three-point Likert-type scale.

The focus of this study was the development of the instrument, the *Knowledge, Instructional Methods, and Preference for Professional Development to Support Autism*

*Spectrum Disorder (ASD) Students at Community Colleges Instrument*. Descriptive statistics were employed for the first three research questions. The means and standard deviations by item and scale were reported. The multivariate analysis of variance (MANOVA) tests were followed up by analysis of variance (ANOVA) tests to determine if significant differences exist by scale for research question four. Significant differences for more than two groups were followed by post hoc contrasts. Finally, analyses were conducted to determine whether there were significant differences by academic cluster.

### **Delimitations**

This study was limited to faculty members employed during the fall semester of 2019 by the Virginia Community College System (VCCS). Only three of the 23 community colleges in the state of Virginia were selected to participate. The three institutions were selected due to the size (small and medium) and location (rural). The rural location was chosen due to Fowler's (2009) claim that participation in rural areas would be much higher. Full-time and part-time faculty members served as participants for the study. The questionnaire found in Appendix D was designed to collect quantitative data using a survey designed exclusively for community college faculty. The inclusion of different sizes of institutions may allow for the generalizability of the findings to other rural community colleges across the United States.

### **Definition of Key Terms**

- Accommodation- modifications to educational environments or academic work to lessen the effect of the disability on a student's opportunity to participate.
- Asperger's Syndrome - high-functioning autism.
- Autism - a condition affecting an increasing population of students, includes symptoms of atypical social, communicative, and repetitious behaviors (Grant & Nozyce, 2013).

- Autism Spectrum Disorder (ASD) - is based on specific observed behaviors of atypical social, communicative, and repetitious behaviors (The American Psychiatric Association, 2018). The term ASD is now used to identify Autism, Asperger's Syndrome, and Pervasive Developmental Disorder, as they are no longer recognized as separate disorders (The American Psychiatric Association, 2018).
- Americans with Disabilities Act (ADA) – A law which ensures that individuals with disabilities may not be discriminated against from any program that receives federal income (VanBergeijk, Klin, & Volkmar, 2008).
- Community College - An institution of higher education that is regionally accredited and offers associate degrees, certificates, and credentials; some community colleges offer bachelor's degrees. Most community colleges are public and funded through state and or local tax dollars. Community colleges are open access institutions and committed to “comprehensiveness in course and program offerings, and community building” (Vaughan, 2006, p. 1).
- Family Education Rights Privacy Act (FERPA) - Once a student turns 18 or attends a postsecondary institution, the right to access educational records transfers from the parent to the student (FERPA, 2015).
- Individualized Education Plan (IEP) - is a plan that requires elementary and secondary schools under the law to provide specialized instruction and services for a student with a documented disability (Individuals with Disabilities Act, 1997).
- Learning Management System (LMS) – software used to deliver course content online to students.



- Pervasive Developmental Disorder - is a developmental delay in communication and social skills.
- Professional Development - educational training provided to faculty members to help increase knowledge, skills, and outcomes.
- Rural Community College “Horseshoe” - The “rural horseshoe” encompasses 14 of the 23 community colleges in Virginia located within an arc similar in shape to a horseshoe across the state of Virginia where 75 percent of the land and one-half of a million residents reside (Rural Virginia Horseshoe Initiative, n.d.)
- Section 504 of the Rehabilitation Act of 1973 – this federal law requires that all elementary and secondary schools provide accommodations to ensure access and success for any student with a qualifying need.
- Two-year colleges – institutions that include community colleges, technical colleges, and junior colleges. The training and degree programs at these institutions generally require two years or more to complete.
- Universal Design for Learning (UDL) - is an educational outline that guides educators’ use of goals, techniques, resources, and assessments to accommodate a wide-range of learning styles.
- Virginia Community College System (VCCS) - state of Virginia system comprised of 23 unique colleges governed by a chancellor.

## **Summary**

Postsecondary faculty often teach the same way their mentors taught while serving as teaching assistants in graduate school. Because many community college professors have not taken education courses or had professional development to help recognize ASD students or

assist them with their unique needs, professors are uncertain of the practices necessary to accommodate these students. It is vital to student success to provide the very students who are least likely to succeed in college (Gobbo & Shmulsky, 2014; Shattuck et al. 2012) with the tools and strategies necessary to promote success. Equipping faculty at the community college level to not only recognize these students, but provide appropriate accommodations is the first step. In the long run, it is essential to local economies as well as global economies to see that these ASD individuals not only graduate from colleges and universities but are employed (White, Ollendick, & Bray, 2011).

The chapters that follow will be organized beginning with chapter two which will provide a review of the literature exploring ASD students' transition from high school to college, reasons ASD student choose community college, the role of disability services, effective programs for ASD students on college campuses, instructional practices, professional development for college faculty and staff, and instructional support staff assisting ASD students. Chapter three will follow with the methodology, a quantitative survey designed for community college faculty members. Chapter four will provide the findings of the survey complete with tables, data, and explanations. The final chapter, five, will present the findings, implications, recommendations for action as well as recommendations for future studies.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

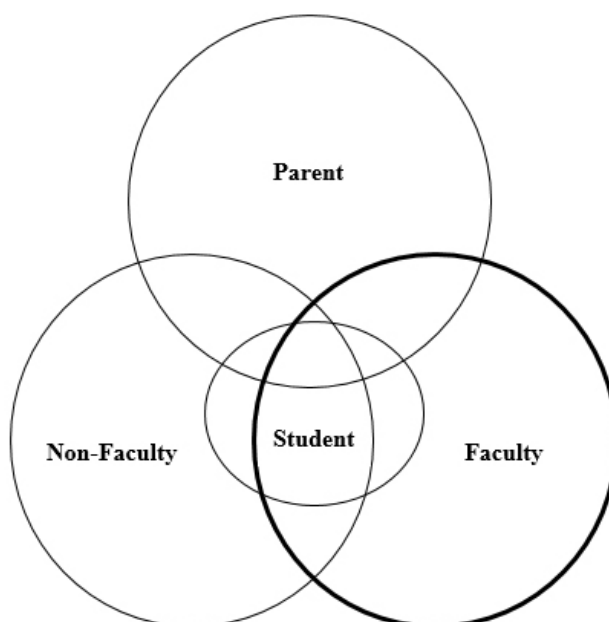
Autism Spectrum Disorder (ASD), a condition affecting an increasing population of students, includes symptoms of atypical social, communicative, and repetitious behaviors (Grant & Nozyce, 2013). The number of students diagnosed with autism in K-12 public schools increased 165 percent from 2005 to 2014 (U.S. Special Education Enrollment, 2016). This growing population is now enrolling in two- and four-year colleges and universities, with the majority selecting two-year institutions predominately due to the proximity to home (Gobbo & Shmulsky, 2012). At the K-12 level, numerous supports such as 504 Plans under Section 504 of the Vocational Rehabilitation Act of 1973 (1973) and the Americans with Disabilities Act (ADA) (1990) and Individualized Education Plans (IEP) are provided to ASD students consistent with federal law under the Individuals with Disabilities Act (IDEA) (1997). When transitioning to college, some students choose not to self-disclose their diagnosis, preventing them from receiving much-needed supports (White, Ollendick, & Bray, 2011). The decision not to self-disclose may be the result of additional testing expenses required by higher education institutions or the students' choice to give up the label due to negative past experiences (Cai & Richdale, 2016). Additionally, parents partner with their student to navigate the K-12 system by completing paperwork, and communicating with teachers, only to find they cannot provide the same assistance at the postsecondary level. The Family Educational Rights and Privacy Act (FERPA) (2015), which is intended to protect students' rights to privacy, actually may complicate matters for students with autism, as it limits parents' access to academic records, college professors, and personnel, restricting their ability to provide support to their student.

From an instructional perspective, faculty may have little or no training recognizing this special population of students, limiting their understanding and support (Gobbo & Shmulsky, 2012). In response to this gap, some institutions have begun to experiment with professional development related to students with special needs (Cai & Richdale, 2016). However, very little balance exists between the number of students entering community college with ASD and the professional development available to professors to aid in recognizing and supporting these students. The themes established in this literature review focus on autistic students' encounters as they enter and navigate the higher education environment and the supports needed to achieve success.

Google Chrome was the search engine used to find sources in the professional literature. Old Dominion University's Monarch One Search was used to find articles between the years 2008 and 2019. Searches were conducted using various combinations with the following identifiers: community college, higher education, faculty, education, instructor, lecturer, tutor, Autism, Autism Spectrum Disorder (ASD), Asperger's, disability, and classroom. Many articles on autism, Autism Spectrum Disorder (ASD), and Asperger's students emerged as a result of the search. Articles were selected based on the relevance of data pertaining specifically to community college and higher education. Sources from the literature based outside the United States were also considered as well as both qualitative and quantitative studies. Identified references of articles and dissertations with relevant information to community college and higher education were also selected. Many articles met search criteria on perceptions and attitudes of faculty toward ASD students, but minimal information could be found to date on faculty professional development. The word disability replaced ASD/Asperger/autism in order to broaden the search.

## Conceptual Framework

The conceptual framework for this study is based on the knowledge that ASD students can be successful when parents, faculty, and non-faculty are involved in their daily experiences at the community college. Figure 1 provides a graphical representation of this conceptual framework. The parents of the ASD student, particularly the mother's educational level influences the student's percentage of attending a postsecondary institution (Krieger, Schulze, Jakobs, Beurskens, & Moser, 2018; Roux et al., 2015). Past educational experiences of parents, including the educational level reached, is one of the most important factors for parents because knowledge of the postsecondary institution process allows for the increased investigation of, and advocacy for services specific to supporting the ASD student. Additionally, parental expectations that the student will attend college after completing high school, may play a significant role in the ASD student's decision to attend college (Chiang, Cheung, Hickson, Xiang, & Tsai, 2012).



*Figure 1.* Conceptual Framework: Supporting the ASD Student in Community College

Students with ASD look to their parents to provide security, protection, and guidance when they begin new activities and adventures (Krieger et al., 2018). Parents with a postsecondary education can more easily help their ASD student when unexpected events occur, such as changes to course schedules, class cancellations due to professor illness, college cancellations due to weather, and semester to semester changes in schedules (Pinder-Amaker, 2014). Additionally, due to their involvement in the K-12 environment, parents understand how to help their student get the accommodations necessary to ensure success. These parents value transition and continually keep their ASD student involved in the process (Chiang et al., 2012). Finally, the parent understands the importance of advocating for accommodations to benefit the ASD student and ensures the student develops these skills to advocate for themselves and carries the skills to college (Highlen, 2017).

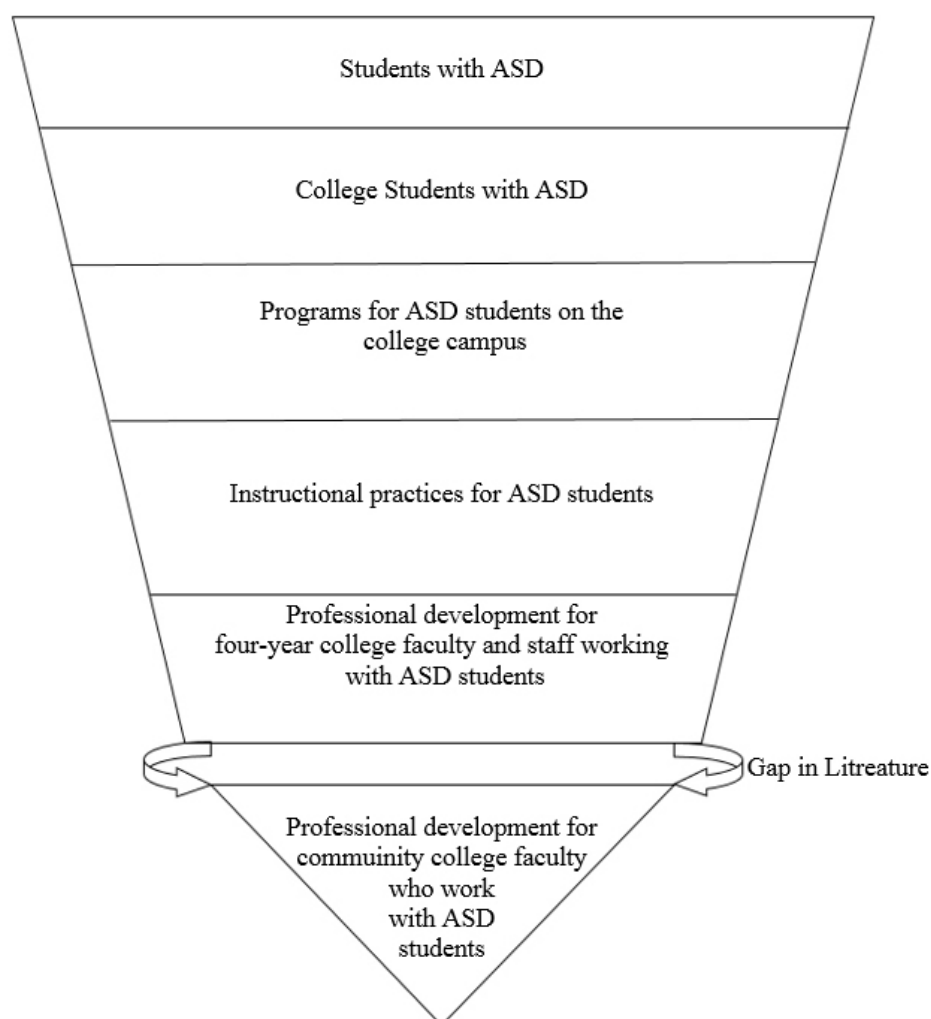
Faculty member involvement is an enormous contributing factor to student success in college (Pinder-Amaker, 2014) and beyond. ASD students count on relationships with their families and the faculty member as they are many times socially isolated from their peers (VanBergeijk, Klin, & Volkmar, 2008). Additionally, ASD students see faculty members as a continuation of the teachers from the K-12 environment.

Non-faculty involvement is also crucial to ASD student success (Pinder-Amaker, 2014). Disability services staff, mentors, and tutors all serve as valuable contacts for ASD students. To ensure communication with the parent and these key educational players, a signed consent form from the ASD student must be obtained (Pinder-Amaker, 2014).

## **Graphical Representation of Chapter Two**

This chapter begins with a description of ASD and moves to students diagnosed with ASD including data, trends, and students' transition to college. Subsequently, college students

with ASD, and their decisions to attend two- or four-year schools, the role of disability services, and perceptions of ASD students in higher education are addressed. Programs proven effective for ASD students on the college campus are described, as well as instructional practices. The gap in the literature specific to community college professors' professional development in regard to recognition of ASD students as well as classroom practices to assist these students is identified. The chapter concludes with descriptions of professional development opportunities in which faculty and staff participate on the college campus. Figure 2 provides a visual representation of the contents of chapter two.



*Figure 2.* Graphical Representation of Chapter Two

## **What is ASD?**

Autism Spectrum Disorder (ASD) is a condition that affects the brain's development in the areas of social communication, social interaction, and behavior (Adreon & Durocher, 2007). The diagnosis, ASD, is not based on a medical examination but specific observed behaviors defined by the American Psychiatric Association (2018) located in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5). Autism, Asperger's Syndrome, and Pervasive Developmental Disorder are no longer recognized as separate disorders but have been combined under the ASD label (Highlen, 2017; VanBergeijk et al., 2008). Because ASD is a spectrum disorder, those affected may experience a range of symptoms and behaviors from mild to severe (Adreon & Durocher, 2007). Social anxiety is often a condition existing concurrently with the ASD diagnosis (Jackson, Hart, Brown, & Volkmar, 2018; White et al., 2011). ASD symptoms begin in early childhood and may not be identified and diagnosed until later in the child's development (American Psychiatric Association, 2018).

## **Students with ASD**

According to the Centers for Disease Control and Prevention (CDC), ASD affects 1 in 59 children (ASD, 2018). Males are four and one-half times more likely to be affected by ASD than females (ASD, 2018). A majority of ASD students attending 2-year colleges have at least one parent who has some college education, and these students are from middle to high-income households (Roux et al., 2015) leading many to believe the misinformation that only specific socio-economic groups are diagnosed with ASD (Tipton & Blancher, 2014). Moreover, more non-Hispanic and non-Black students have been diagnosed with ASD due to a diagnosis before the age of eight (ASD, 2018). Early diagnosis of Caucasian children from families with average



to above average income may be the explanation for Tipton and Blancher's (2014) report of misinformation.

Because students are provided with appropriate accommodations to improve their success in the K-12 environment, an increasing number of ASD students are enrolling in higher education (VanBergeijk et al., 2008). Many ASD students possess above average to high intelligence levels (Adreon & Durocher, 2007) which helps explain their desire to attend college. In a 2011 study by the National Center for Education Statistics (NCES) it was found that 70 percent of ASD students enroll in community colleges rather than four-year institutions. Obtaining a degree and becoming employed full-time is the goal for many ASD students (Anderson, Stephenson, & Carter, 2017). However, not all ASD individuals have the same opportunity to realize employment (Shattuck, Narendorf, Cooper, Sterzing, Wagner, & Taylor, 2012). Race and ethnicity are not the major hindrances ASD students face when transitioning from high school. Rather, ASD students in lower socio-economic classes have less chance of entering postsecondary institutions and obtaining employment than their more affluent peers after graduating from high school (Shattuck et al., 2012). These students typically do not have the same connections and opportunities as those of higher socio-economic status.

### **College Completion Comparisons**

Community colleges have been criticized for the low rate of attainment of a certificate, degree, or credential by students (when examining a cohort of students) resulting in 20 percent completion after two years (Mullin & Phillippe, 2013). However, when following this same cohort of students, after six years they demonstrate a rate of 62 percent completion of a certificate, degree, or credential (Mullin & Phillippe, 2013). But, ASD students' level of

completion is lower than all other students with disabilities except those with intellectual disabilities (Gobbo & Shmulsky, 2014; Shattuck et al., 2012).

Sanford, Newman, Wagner, Cameto, Knokey, and Shaver (2011) conducted a study and provided a report on the outcomes of students with disabilities up to six years after high school graduation. The data used for the study was obtained from the National Longitudinal Transition Study-2 (NLTS2) conducted by the Department of Education. The researchers found that 47 percent of ASD individuals attended a postsecondary institution and completed a degree at a rate of 35 percent compared to 61 percent of all individuals with a disability completing at a rate of 38 percent (Sanford, Newman, Wagner, Cameto, Knokey, & Shaver, 2011).

In addition to lower rates of completion in college, ASD students also have lower rates of employment upon degree completion when compared to others with disabilities (Debrand & Salzberg, 2005). Sanford et al. (2011) also found that of the ASD individuals employed, they earn less than all others with disabilities except those with mental retardation. Community colleges must evaluate these data to help at risk populations succeed (Mullin, 2017).

### **Transition from High School to College**

The first step on the path to higher education involves a transition plan. VanBergeijk, Klin, and Volkmar (2008) contended the decision to transition from high school to college is now an option for many ASD students due to early intervention and awareness of the disorder. Shattuck, Narendorf, Cooper, Sterzing, Wagner, and Taylor (2012) used data from the National Longitudinal Transition Study-2 (NLTS2) to evaluate outcomes of ASD students after high school and suggested that large gaps in transition planning placed these students at high risk immediately upon leaving high school. The transition from high school to college must be strategically planned due to ASD students' difficulty adapting to change (VanBergeijk et al.,

2008). ASD students should also be exposed to college curriculum while in high school (VanBergeijk et al., 2008) in an effort to gain the experience of academic rigor, as well as be presented with the variability of class choice. High school courses are typically outlined for the next grade in sequence, providing the predictability ASD students come to expect. By adding college curriculum, the variability of college courses and schedules can be introduced (Highlen, 2017).

Learning to self-advocate (Adreon & Durocher, 2007) while in the high school is an additional skill the ASD student should acquire before high school graduation. Visiting the college campus several times in an effort to become familiar with the surroundings before school begins is also an important component of transition and self-advocacy (Adreon & Durocher, 2007). Zeedyk, Tipton, and Blacher (2016) reported only three percent of students were leaders in planning their transition to college: a necessary component for success. Families should also be educated on methods to aid their student in the navigation from high school to college (Brown & Coomes, 2015). With prior knowledge of the admission process, financial aid process, college course offerings, and available student services, families may better anticipate potential problems and work through them. The results of the study conducted by Tipton and Blancher (2014) using email questionnaires asserted more information should be provided for all at the university to assist ASD students with transition.

### **The Reasons ASD Students Prefer the Community College**

In addition to transition, learning independent living skills and finding themselves with considerable amounts of unstructured time (Muller, Schuler, & Yates, 2008) are major factors students with ASD must consider in choosing a college. Attending community college provides students with the opportunity to live at home while developing independent living skills (Adreon

& Durocher, 2007; Highlen, 2017) instead of being forced into developing these independent living skills in the stress of an unfamiliar environment with added social demands that living in a residence hall creates (Pugliese & White, 2014). Highlen (2017) suggested many students choose community college due to the college size, class size, and proximity to home. Brown and Coomes (2015) suggested ASD students choose community college due to open access, learning environments, and reputation for support of ASD students. The open access standard held by community college is to admit practically all who will benefit educationally (Bahr & Gross, 2016; Brown & Coomes, 2015; Vaughan, 2006). Additionally, many of these students find comfort in attending a community college due to the large number of high school peers who also attend (Townsend & Wilson, 2006). Though not as comfortable socially for the ASD student, four-year universities may offer more courses suited to the ASD students' focused interests (VanBergeijk et al., 2008). Independent living skills should be assessed before choosing the four-year option unless the university is in close proximity to home, where the student may commute. Independent living skills may be comprised of common daily tasks such as managing medicine, using an alarm to wake, understanding the rules for meal plan use in the cafeteria as well as hours of operation (Adreon & Durocher, 2007). More complex skills may include, managing bank accounts, budgeting, shopping, and arranging transportation (Adreon & Durocher, 2007). Finally, extensive sensory issues to noises such as the occasional fire alarm or smells of food in the dorm or cafeteria (Highlen, 2017) are additional considerations for ASD students making college plans.

### **The Role of Disability Services**

Once ASD students decide on a two-year or four-year college upon graduation from high school, they are no longer protected under the same guidelines as they were in K-12 schools and

must seek out the disability services office and disclose their needs (Adreon & Durocher, 2007). Brown and Coomes (2015) reported results of their cross-sectional mixed methods study using questionnaire data collected from 146 disability services personnel that revealed academic supports were provided to students with ASD 95 percent of the time, while sensory supports were provided only 36.3 percent of the time. Although many institutions are adept at helping students with learning disabilities, they face new challenges while accommodating students with ASD (VanBergeijk et al., 2008). This information matches the data collected by Cai and Richdale in their 2016 study. Through Likert-type questionnaires and recorded interviews, 23 students responded that their educational needs were met, but social needs were not met (Cai & Richdale, 2016). The 15 family members included in the same study reported neither educational nor social needs were met. Results from this study, as well as the information acquired in the Adreon and Durocher (2007) report, suggested benefits for those ASD students who allow disability personnel to speak with faculty on their behalves, in addition to examining the high school IEP to define their needed supports.

### **Recognizing Students with ASD**

In the classroom or on campus, all members of a higher education community must realize to encounter a person with ASD is very real possibility (Tipton & Blancher, 2014). These students should be valued for the diversity they bring to campus and efforts should be made to ensure their success (Gobbo & Shmulsky, 2016). Tipton and Blancher (2014) gathered data using questionnaires to determine the amount of correct information 1,057 students, faculty, and staff could identify in regard to autism. Overall, their findings on one college campus revealed more participants scored well above the mean than expected. ASD individuals and those with ASD family members scored the highest on the autism awareness questionnaire. Studies were

also conducted to determine the effects of the label, autism, on the ASD student. Brosnan and Mills (2016) found that when a student was known to have the clinical label, autism, their unusual behaviors were more accepted by their peers than similar behaviors of the ‘typical’ college student. In this study, 120 students read vignettes and answered questions immediately following. Butler and Gillis (2011) found the behaviors associated with autism, specifically Asperger’s Syndrome, created more stigma than the autism label alone. The 195 students in this study also read vignettes and responded to questionnaires. Nevill and White (2011) found no specific majors were more accepting of ASD students than others. Additionally, Matthews, Ly, and Goldberg (2015) noted the knowledge of a diagnosis of autism may improve attitudes of others toward the person diagnosed with autism. The results of this study may encourage ASD students to report their disability.

### **The ASD Label**

Also studied were the perceived notions that atypical behaviors of the ASD student led others to believe that some autistic persons prefer isolation as opposed to engaging in relationships. Behaviors such as not understanding other’s points, talking too much, talking too little, and displays of anxiety are challenges faced by the ASD person (Gobbo & Shmulsky, 2014). Gillespie-Lynch et al. (2015) reported women are more willing to engage with an autistic person, with the exception of romantic engagement, than men. Sensitivity to noise (Cai & Richdale, 2016; Colclough, 2017) creates challenges in itself. ASD students may choose not to attend a sporting event, concert, or gather in large groups due to noise. Again, the lack of empathy for the ASD student may lead to the belief of preferred isolation. ASD college students may withdraw and participate in few to no social activities (Koegel, Ashbaugh, Koegel, Detar, & Regester, 2013). Adding college programs to provide organized guided social opportunities,

may reduce or eliminate challenges ASD students experience related to social issues and the effects that a lack of socialization creates (Koegel, et al., 2013).

### **Perception of Behaviors ASD Students Display**

Behaviors related to severe social skills challenges may also affect work (VanBergeijk et al., 2008), friendships, and romantic relations (Jobe & White, 2007). Many people with ASD display immature behavior when mature behavior is expected, especially on college campuses (White et al., 2011). Therefore, ASD students are more prone to be socially excluded than students with other disabilities considering the significant impairments in social communication (Matthews, Ly, & Goldberg, 2015). It is important to note, a challenging social situation for someone with ASD should not be interpreted as a lack of interest (Gobbo & Shmulsky, 2014). Jobe and White (2007) findings also suggested that the social skills and communication difficulties, characteristics of autism, contribute to loneliness and reduced social motivation. Additionally, Jobe and White (2007) contended long term relationships are related to decreased loneliness.

White, Ollendick, and Bray (2011) stated students with higher autism spectrum severity scores reported more symptoms of social anxiety, depression, and anger. Additionally, students with low ASD severity scores, reported higher rates of satisfaction with college and life in general (White et al., 2011). White et al. (2011) concluded their study by citing the importance of screening for autism on higher education campuses.

### **Effective Programs for ASD Students on the College Campus**

Common findings of improved confidence while providing social supports was noted in two experimental studies that provided treatment. The experimental research of adding behavior treatment to two small groups of no more than five autistic students resulted in positive outcomes

(Koegel et al., 2013; Mason, Rispoli, Ganz, Boles, & Orr, 2012). In the Koegel, Ashbaugh, Koegel, Detar, and Regester (2013) study, three students made lists of events they were interested in attending, actually attended the social events, and then attended follow-up weekly meetings with mentors who assisted in continued social planning. These mentors also provided specialized socialization tips incorporating how to ask questions, taking interest in others' activities, and responding appropriately to conversation. In the Mason, Rispoli, Ganz, Boles, and Orr (2012) study, two students attended two weekly meetings and viewed videos on appropriate eye contact, facial expressions, turn taking, and sharing emotions. Students with ASD can benefit from social coaches who help with comprehension of verbal and nonverbal interactions, coping with stress caused by environmental overstimulation, and development of peer interactions (Nevill & White, 2011). Peer training allows the student to enjoy the full extent of the college-life experience (VanBergeijk et al., 2008). All participants reported, through questionnaires, improved quality of life as well as improved confidence. Koegel et al. (2013) noted the results of increased socialization in ASD college students with the inclusion of social planning.

Pugliese and White (2014) studied a Problem Solving Skills 101 course promoting effective problem solving for a small group of five ASD male undergraduate students at a technical institution. The goal of the study was to prove that effective problem-solving skills may improve quality of life and aid in success of college (Pugliese & White, 2014). With an 83 percent completion rate of the course, two students demonstrated improvements in problem solving and reported less anxiety. The emphasis of the instruction included developing organization skills, time management skills and strategies, and strategies to recognize and react appropriately to social issues. Additional instruction in negotiation with peers and teachers



inside the classroom as well as how to appropriately access extracurricular activities was found to be a need (Pugliese & White, 2014). Pugliese and White (2014) noted failure to provide social supports for ASD students at universities would exclude these students from academic experiences as well as social experiences which are the focus of university life. It is important to note that although social accommodations have been shown to be helpful for the ASD student, these social accommodations may not be required services regulated by the Americans with Disabilities Act (ADA) (1990). Public higher education institutions are required by the federal government to adhere to equitable accommodations while maintaining academic standards (Brown & Coomes, 2015). On the other hand, one of the challenges all college staff and administrators face is the success and completion of college for all students (Anderson & Butt, 2017). As academic success is the new normal, it may be in the best interest of the ASD student as well as the college to provide the needed social supports (Nevill & White, 2011; VanBergeijk et al., 2008; Williams, 2016)

### **Instructional Practices for ASD Students**

The college classroom presents many challenges for the ASD student who may have sensitivity to light, smell, and sound (Gobbo & Shmulsky, 2012). Poor handwriting, (Cai & Richdale, 2016) underdeveloped critical thinking skills, and no awareness of others' viewpoints also complicates the classroom setting (Gobbo & Shmulsky, 2014). In addition, ASD students are very literal; they do not understand social cues (Williams, 2016), humor, sarcasm (Adreon & Durocher, 2007), or reciprocal conversation due to their difficulty with semantics and pragmatics (VanBergeijk et al., 2008). Voice modulation may be too loud or soft and personal space is also a problem as the ASD student may encroach on others' personal space without realization (Gobbo & Shmulsky, 2014). Comprehension and the processing of multiple step directions

create academic difficulties for ASD students (Adreon & Durocher, 2007). It is important for educators to realize ASD is a neurological disorder that affects the decision making and response process based on how the ASD student's brain interprets events (Williams, 2016).

A significant body of empirical evidence exists which suggests accommodations for the ASD student in the classroom. These suggestions include: provide a clear and specific syllabus (Brown & Coomes, 2015), provide priority seating (Zeedyk, Tipton, & Blacher, 2016), chunk large assignments into small sub-assignments (Zeedyk et al., 2016; VanBergeijk et al., 2008), and provide video presentations of the lecture ahead of class (Colclough, 2017). Additionally, ASD students should seek tutoring (Adreon & Durocher, 2007) in an effort to support new curricular information as well as reinforce previously learned material.

Predictability of schedule is a necessity for the majority of ASD students (Cai & Richdale, 2016; Gobbo & Shmulsky, 2012) who should be notified in advance of a schedule change such as a class cancellation, change in class routine, or a location change of class. Should it become apparent that the student is becoming distressed, a calming space should be identified where students may take a quick break from the light, sound, and smell issues they are experiencing (Gobbo & Shmulsky, 2012). Many have faced ridicule by their peers who lack understanding of the disorder. To help ensure this does not happen in the classroom, safe spaces to learn in the classroom should be provided (Colclough, 2017). Due to the previously mentioned challenges, group work may present additional demands for the ASD student (Cai & Richdale, 2016; Gobbo & Shmulsky, 2014). Providing alternative assignments may be beneficial. In addition, knowledge of courses requiring group work should be relayed to students with the possibility of requesting course exemptions or course substitutions (Adreon & Durocher, 2007) for students having difficulty learning the skills necessary to participate in a

group. Due to the encompassing spectrum of autism, some modifications in the classroom may only benefit a few while others may aid a variety of learners (Gobbo & Shmulsky, 2012; Highlen, 2017). As ASD students increasingly come to the higher education institutions, best practice strategies need to become more commonly known and utilized (Highlen, 2017). Along with challenges, ASD students also add richness in the classroom environment. They are rule followers, they have strong memory skills, and their concentrated interests in focused areas may drive them to achieve and succeed in the classroom (Gobbo & Shmulsky, 2014).

### **Professional Development for College Faculty and Staff Working with ASD Students**

Brown and Coomes (2015) stated over one half of the 367 two-year institutions responding to their questionnaire offered faculty professional development. However, 95percent of the self-reported professional development from the Brown and Coomes (2015) study was conducted informally, initiated by faculty, and through one-on-one discussions with disabilities services personnel. The majority of faculty did not begin deliberations until presented with an ASD student in the classroom.

**Professional development created but not used.** Moriña and Carballo (2017) noted although professional development has been created to help educators with ASD students, many institutions do not use it. The need to provide professional development and assess the usefulness of the training was the focus of the study conducted by Moriña and Carballo (2017). A total of 20 participants, 12 females and eight males, participated in 54 total hours of training; 12 hours face to face and 42 hours online. The online training was conducted through a learning management system (LMS) and consisted of eight modules. The feedback from the training indicated instructors felt more confident knowing the regulations governing student's rights to demand modifications, such as instructor provided notes, and read aloud tests. Professors also

noted the importance of modifying curriculum regarding accessibility by adding transcripts to video and modifying font color, font size, and font type (Moriña & Carballo, 2017). Professors' willingness to provide accommodations when understanding the disability is a positive affirmation to the main barrier reported by students, faculty members' opposition to make adjustments to the curriculum. Also reported in the results of the study was the need to make professional development accessible immediately to the instructors and not wait until a disabled student enters the class. In addition, professors noted the development of empathy for students with disabilities as professors became more aware of their struggles (Moriña & Carballo, 2017). Students who are blind or have hearing impairments have obvious needs while students who have a diagnosis of ASD normally do not have impairments that are visible or easily detected, leading many faculty members to be unwilling to provide support (Grogan, 2015).

**The need for professional development.** Other studies discussing professional development did not include training but reported the need for training as stated by faculty, disabilities services staff, and students. Debrand and Salzberg (2005) reported the results of questionnaire data collected in the United States from 420 members of the Association of Higher Education and Disability (AHEAD). A 90-minute faculty training developed by Debrand and Salzberg (2005) consisted of five sections: introduction, disability law, accommodations for disabled students, a case study describing the process of acquiring accommodations, and a student panel consisting of students with disabilities. The program was evaluated by 73 percent of the disability services department staff. The group represented by 78 percent females, determined the two most valuable modules were the accommodations module which explained the students' common requests for course modifications, and the law segment module which explained students with disabilities and their rights. A qualitative study conducted in Spain,

using questionnaires to gather students' attitudes concerning faculty classroom actions toward students with learning disabilities, was returned by 44 students with some form of disability (Moriña, Cortés-Vega, & Molina, 2015). Students noted some professors are unwilling to learn to use technology or make modifications to teaching styles, which are both perceived as helpful for ASD students. Moreover, students noted a fair, positive attitude from the faculty should be viewed as an equal opportunity to succeed and not as providing special treatment. In addition to faculty modifications, students noted the inclusion of additional technology in the classroom such as monitors on each desktop and digital blackboards. Making use of the current learning management system (LMS) by including documents, assignments, and grades would all be helpful. Further, students requested faculty be trained in various disabilities, technology, and the needs and accommodations appropriate for each.

Cook, Rumrill and Tankersley (2009) created an online quantitative questionnaire and used the college email system to transmit this questionnaire to faculty within an eight-campus university system. Faculty members responded to statements about accommodations-policy, accommodations-willingness, legal issues, Universal Design for Learning (UDL), disability characteristics, and etiquette. The response rate to the questionnaire represented 18 percent of those emailed. The purpose of the study was to investigate faculty perceptions of issues related to students with disabilities and how these issues were being addressed within their eight-campus system. The participants reported that issues related to law, UDL, and disability characteristics were not suitably addressed by their institution (Cook, Rumrill, & Tankersley, 2009). The authors suggested that an action plan be established to provide support and resources for faculty members which would better prepare them with information on law, UDL, and characteristics of

the disabled. This added support for faculty members should in turn improve the support students with disabilities receive which will improve their likelihood for successful completion.

**Universal Design for Learning.** UDL offers accessibility by providing multiple methods for all students to access classroom content (Grogan, 2015). UDL offers students the opportunity to choose an assessment method from a list versus having one standard written evaluation (Grogan, 2015). Additionally, students stressed the need for faculty to attend diversity training to improve empathy toward students with disabilities using the orientation approach many institutions require of new students at the beginning of the semester (Moriña et al., 2015). College classrooms should be welcoming to diverse populations (Highlen, 2017).

**Students experiences with accommodations.** Sarrett (2018) conducted a mixed methods study using questionnaires and focus groups to collect data from ASD individuals across the United States. The questionnaire was voluntarily completed by 66 students diagnosed as ASD. Additional information was obtained from online focus groups consisting of 31 participants; 65 percent of these participants had registered with disabilities services. Students noted difficulty getting faculty to make academic accommodations due to their inexperience with accommodations, regulations, and knowledge of how to modify educational content. Multiple teaching styles and various approaches for students to demonstrate their understanding, such as oral tests and application tests, were also requested by students (Sarrett, 2018). One ASD student noted if a special situation should arise such as an emergency evacuation and no rules had been previously established, this student may act in a manner not appropriate for the situation. It should also be noted that ASD students stated sensory and social needs were not met. Since many faculty members are not trained, it may be essential to provide training for peers, faculty, and staff on neurodiversity during graduate or professional school to ensure best

practices for ASD students are in place when entering higher education institutions (Sarrett, 2018).

Survey data collected from one university consisting of 198 full-time faculty members found more willingness on behalf of the faculty to provide accommodations for students with learning disabilities after they had participated in training compared to those who had not participated in any training (Murray, Lombardi, Wren, & Keys, 2009). Also noted in the results of the Murray, Lombardi, Wren, and Keys (2009) study was that additional trainings with varied designs aided faculty members to exhibit more positive attitudes toward learning disabled students. Various designs mentioned in the study were attending workshops, completing coursework, reading books, reading articles, and visiting websites. Finally, it was recommended that a repository of information be created for immediate access to videos, links to websites, and material created by faculty members.

Faculty must be educated on what to expect when an ASD student is present in the classroom (Brown & Coomes, 2015). Professors with no knowledge of ASD do not understand the reason for modifications to coursework and assignments (Taylor, 2005). To ensure all faculty and staff are prepared, professional development should be obligatory, as opposed to voluntary, to ensure students' needs are met from day one on campus as well as in the classroom (Brown & Coomes, 2015).

**Tips for faculty members.** Results from several studies included tips for instructors to implement to aid students with learning disabilities in the classroom. Brown and Coomes (2015) suggested the need to provide structure and routine within the classroom as well as the need to communicate directly and refrain from using inferences or sarcasm. Gobbo and Shmulsky (2012) also suggested establishing predictable routines especially at the beginning and end of

class, as well as minimizing distractions within the classroom. Along these lines, too much teacher movement within the classroom environment may be distracting for ASD students (Moriña & Carballo, 2017). Additionally, Gobbo and Shmulsky (2012) recommended providing reminders to ASD students when changes to the regular class schedule are required. Moriña and Carballo (2017) also recommended that instructors not talk with their back to students while writing on the board. Gobbo and Shmulsky, (2012) noted the need to address inappropriate behavior of the ASD student immediately as it may not be obvious to them. Finally, classroom instructors need to recognize when ASD students are anxious or agitated and direct them to leave the room. To move around or be provided a safe space, such as another room, may be necessary to alleviate the situation (Gobbo & Shmulsky, 2012).

**Executive functioning and critical thinking.** In a later study, Shmulsky and Gobbo (2013) mentioned the importance of recognizing executive functioning as the ability of a human to manage focus, time, and energy. In the classroom, ASD students require assistance in devoting adequate time for assignments (Shmulsky & Gobbo, 2013). Faculty can help with supporting executive functioning problems by establishing set days for assignment due dates, providing seating assignments, weekly schedules, grading rubrics, and structured lectures (Shmulsky & Gobbo, 2013). In addition to providing hard copies of course materials, the inclusion of these course materials on an LMS will offer an additional layer of support for ASD students (Shmulsky & Gobbo, 2013).

Besides executive functioning, Gobbo and Shmulsky (2014) noted the importance of addressing the insufficient critical thinking and conceptual thinking skills that most ASD students display. The recommendation to provide support may include techniques such as how to categorize and sort information to enhance memory (Gobbo & Shmulsky, 2014) and relate



these categories to specific interests. When possible, opportunities for ASD students to use their strengths should be provided (Gobbo & Shmulsky, 2016) as many have focused interests in which they are ‘experts.’ As faculty members encounter more ASD students in the classroom, it is essential to share effective strategies with other instructional staff in the institution (Highlen, 2017).

Most studies included in the review of the literature concluded noting the need for additional faculty training (Brown & Coomes, 2015; Colclough, 2017; Gobbo & Shmulsky, 2012; Tipton & Blacher, 2014). Gobbo and Shmulsky (2012) provided suggested modifications for students within the classroom in their study but noted faculty should receive the benefit of training to implement needed adaptations. “...More attention will need to be paid to the classroom experiences of those with autism spectrum disorders if individuals with the disorders are to maximize the benefit they derive from postsecondary study” (Gobbo & Shmulsky, 2012, p. 45). Studies containing faculty as feature participants focused mainly on the services individual colleges have available for ASD students or concentrated on techniques to modify the classroom. Also, the majority of these studies were not exclusive to community college faculty members. Moreover, Colclough (2017) noted the importance of the faculty role in advising and aiding students in individual courses, degree completion, and serving as mentors. Colclough (2017) also noted how the connection students have with faculty and peers serve to support the student experience. College staff can ill afford to delay faculty training, whether through one-on-one discussions or large group workshops at the beginning of a semester (Brown & Coomes, 2015), when many are preoccupied with the tasks involving start-up procedures. Rather, this training should be conducted continually for all faculty and staff and be focused on the ASD student and specific to their needs and supports.

## **Instructional Support Staff**

Cai and Richdale (2016) noted the need for immediate support for ASD students due to anxiety. Many students with ASD expect immediate answers or assistance. Anxiety may increase and create a difficult situation when these immediate expectations are not addressed. The importance of employing enough instructional and support staff to ensure ASD students' needs are met is critical (Cai & Richdale, 2016). As White et al. (2011) noted, many social supports such as tutors and mentors are provided at universities for an extra fee. Tipton and Blancher (2014) noted ASD students depend on relationships with faculty. Faculty can build on these relationships and maintain a comfortable dialogue to encourage ASD students to feel safe within the classroom, but ASD students need connections outside of the classroom as well. Having a connection with a tutor or mentor may provide ASD students with additional relationships while on campus, but to incur extra fees to receive these supports may put the assistance financially out of reach for many (Anderson & Butt, 2017).

A case study held at a university in the United Kingdom and conducted by Taylor (2005) over a two-year period while serving as a tutor for two of the three ASD students included in the study, found the tutor served as an intermediary between the ASD student, instructor, and parent. Taylor (2005) reported prompts were needed to remind ASD students to submit coursework as well as attend class. Additionally, the need to talk in plain, direct, language by the tutor as well as the instructional staff was necessary so the ASD students would not misinterpret information. It is important to note many ASD students do not understand sarcasm or innuendos. Finally, early written permission obtained from the student for the tutor to speak with parents, should a situation arise, was suggested by the author (Taylor, 2005).

The campus community must be educated to use best practices to recognize and support the ASD student in areas across campus including financial aid, counseling, academic support, and student services (Brown & Coomes, 2015; Tipton & Blacher, 2014). Gobbo and Shmulsky (2016) suggested institutions invite autistic individuals to campus and include ASD students and community members to glean suggestions for support programs and emphasize institutional diversity. The establishment of ASD clubs, as well as news columns to celebrate diversity, might also aid the ASD student to feel more a part of the campus community (Gobbo & Shmulsky 2016; Nachman, & Brown, 2019; Shmulsky & Gobbo, 2019). Highlen (2017) recommended providing summer orientation for ASD students to increase familiarity with the campus as well as campus personnel. This orientation not only provides familiarity with the campus and staff, it provides transition to a new environment for these students. Finally, ASD students have lower graduation rates and lower rates of employment upon degree completion when compared to others with disabilities (Debrand & Salzberg, 2005). To improve on this statistic, colleges must make every possible effort to facilitate ASD students' success.

### **Gaps**

The emerging themes in the review of literature focused on (1) the ASD student (data, trends and transition to higher education), (2) college students with ASD (choosing the two- or four-year college, disclosing the disability, recognizing students with ASD, the helpfulness of the ASD label and perceptions of behaviors ASD students display), (3) effective programs for ASD students on the college campus (social skills and problem solving skills), (4) instructional practices for ASD students (challenges and modifications for ASD students in the classroom) and, (5) professional development for college faculty and staff working with ASD students (full-time faculty, part-time faculty, advisors and instructional support staff). Each of these themes

reinforces the need for additional professional development. Although many gains have been made to provide support for the ASD student, the postsecondary system has much ground to cover to ensure supports are in place for a successful and satisfying experience (White et al., 2011) especially in the community college classroom. Highlen (2017) contended classrooms should be welcoming of diverse populations and ASD students' needs for accommodations should also be welcome.

The number of students diagnosed with autism in K-12 public schools is increasing, and this special population is now enrolling in colleges and universities. Adding the ASD student to the existing pressure on colleges to push all students toward completion and success complicates the matter further. Additionally, student success may depend on the relationships built in the academic setting. Although classroom best practices are listed in the review of the literature, higher education faculty professional development to support the ASD student in the classroom environment is almost non-existent (Zeedyk et al., 2016). In response to this gap, campuses must provide professional development and support for faculty and staff to familiarize them with the challenges and the opportunities presented by ASD students (White et al., 2011). "College students with Autism have had to be incredibly brave and resilient to get to campus from where they started. Their presence demands ... understanding. Their journey requires ...good company" (Williams, 2016, p.54).

## **Conclusion**

The mission of the community college encourages all who can learn to attend. ASD students, with proper support, can succeed in community college and prove themselves beneficial as productive members of the workforce and community. Students are aware that the higher their educational level the higher their earnings capacity may prove to be over a lifetime

(Mullin & Phillippe, 2013). Students enroll in community colleges to gain new skills, retrain for the workforce, and obtain higher pay (Mullin & Phillippe, 2013). Many ASD students will seek employment upon graduation. ASD students define themselves by their employment (Briel & Getzel, 2014) and it is the responsibility of the postsecondary institution to provide support and ensure success (Mullin, 2017). White et al. (2011) stated overlooking human aptitude and efficiency due to the lack of research, specific to ASD college students, produces substantial costs not only locally but globally. This study will add to the literature and potentially fill the gap as this researcher investigates community college faculty members' experiences with ASD individuals.

Chapter three will present the purpose of the study, the research questions, the design of the instrument, and the process to collect data. The instrument is a quantitative survey designed for community college faculty members.

## **CHAPTER THREE**

### **METHODOLOGY**

Chapter three includes a description of the study design, research questions, questionnaire development, data collection, and analysis. The chapter concludes with a discussion of the study's limitations.

#### **Design and Purpose Statement**

The purpose of this study was to explore community college faculty members' knowledge of Autism Spectrum Disorder (ASD) students, and the classroom practices utilized that may provide support for ASD students. This study will also help to advance the understanding of the type of professional development most effective to improve ASD students' success in college as perceived by community college faculty members. Therefore, the intent of this study was not to manipulate or control, but to gather information about the community college professors' experiences with ASD students in their classrooms. More specifically, a descriptive and comparative design was employed. The dependent variables were questionnaire scale scores assessing ASD recognition, classroom practices, and professional development preferences. The independent variables were gender, years of experiences as a college instructor, employment status, and clustered academic disciplines. A cross-sectional study allows for an immediate collection of data as well as produces a timestamp of the data (Leedy & Ormrod, 2016). Moreover, a survey method was selected due to the potential to reach a large number of participants, the ease of access for participants, the ease of data collection, and the low cost. The findings may provide guidance to assist community college professors with instructional strategies and modifications to the classroom as well as an increased awareness of ASD characteristics.

## **Research Questions**

This study was guided by the following research questions:

1. To what extent do faculty members think they can recognize students with ASD in their classrooms?
2. What pedagogical practices do community college faculty members utilize that may support ASD students?
3. What type of professional development do community college faculty members perceive may best help them to support ASD students?
4. How do faculty members differ in their ASD recognition, classroom practices, and professional development preferences based on gender, years of experience, employment status and academic discipline?

## **Theoretical and Empirical Background**

A thorough review of the literature, a preliminary qualitative study, a blueprint, and a pilot study of the questionnaire guided the development of the final survey instrument found in Appendix D. The preliminary qualitative study consisted of five professors from different departments and divisions (Arts and Sciences and Business and Technology) in one rural community college. These professors were interviewed, observed, and participated in focus groups in the fall of 2017 to determine the need for professional development (Hanks, 2017). The findings of the study indicated a need for professional development specific to classroom instruction, classroom environment modifications, and collaboration to support the ASD student.

Additionally, the theoretical framework for this study was based on a synthesis of literature from qualitative, quantitative, and mixed methods studies defining classroom strategies used with ASD students in the higher education classroom (Adreon & Durocher, 2007; Brown &

Coomes, 2015; Cai & Richdale, 2016; Colclough, 2017; Debrand & Salzberg, 2005; Gobbo & Shmulsky, 2012; Gobbo & Shmulsky, 2014; Grogan, 2015; Highlen, 2017; McKeon, Alpern, & Zager, 2013; Morina, & Carballo, 2017; Sarrett, 2018; Taylor, 2005; VanBergeijk, Klin, & Volkmar, 2008; Williams 2016; Zeedyk, Tipton, & Blacher, 2016). Much of this literature was reviewed in the introductory chapters. Although these studies provided suggestions for possible modifications to both instruction and the classroom environment, the majority of studies were held at either four-year institutions or specialized two-year institutions, and they did not specifically examine community college faculty members and their relationships with ASD students.

### **Population and Sample**

The target population of the questionnaire was all full-time and adjunct faculty members teaching at three of the 23 community colleges in the Virginia Community College System (VCCS). Because all faculty members were invited to participate, the survey fulfills the comprehensiveness Fowler (2009) suggested was necessary. One type of sampling error occurs when people are omitted from participation in the survey, referred to as under coverage, and efforts were made to avoid this type of error (Groves, 2011). The chosen community colleges were located in the “rural horseshoe” part of the state and were selected due to the small and medium size institutions and their rural location. The “rural horseshoe” encompasses 14 of the 23 community colleges in Virginia located within an arc similar in shape to a horseshoe across the state of Virginia where 75 percent of the land and one-half of a million residents reside (Rural Virginia Horseshoe Initiative, n.d.).

The selection of rural institutions was supported by Fowler (2009), who noted the response rates to questionnaires are generally higher in rural areas. Rural community colleges



were selected due to the lack of resources available at these institutions and the potential that services provided may not be equal to those provided at suburban and urban institutions. The rural institutions were also selected due to the primary researcher's connections with those in rural areas. The primary researcher resides in a rural area and has developed connections with community college faculty and staff from rural areas. An email inviting professors to participate, found in Appendix B, was transmitted along with a link to the online survey, found in Appendix D, in the fall of 2019.

Dillman (2007) recommended including the link to the questionnaire along with the cover letter in the same email. Incentives were offered to professors once they completed the survey. Participants at each of the three institutions gained the opportunity to win a \$100 gift card at each college. Additionally, each participant was provided with a pamphlet containing best practices to support ASD students based on the research literature and outcomes of this study. The advertisement of the incentives was included in the cover letter as well as at the conclusion of the questionnaire. Additionally, Dillman (2007) recommended multiple contacts with participants to achieve a high response rate. A follow-up email, found in Appendix C, was transmitted the last week of availability with a reminder to complete the questionnaire before the survey end date. College vice-presidents at the three rural institutions agreed to send out the initial and follow-up emails to their faculties to encourage participation. The email sent to recruit college vice-presidents' assistance may be found in Appendix A. Dillman, Smyth, and Christian (2009) and Fowler (2014) suggested that sending an email invitation to participate in a questionnaire from an individual with authority in an organization, such as a president, may encourage participation.

All full-time and adjunct professors are assigned a college email address. Those actively teaching in the fall of 2019 received an invitation to participate through their college email

address. Fowler (2009) suggested professionals working in educational institutions routinely use and are familiar with the email system.

### Survey Instrument

As noted, the theoretical framework based on an extensive literature review was used to identify constructs and develop the questionnaire. The questionnaire blueprint appears in Table 1. The items were grouped into two broad categories: knowledge of ASD and pedagogical practices. Within these broad categories, faculty members were asked to respond to items reflecting knowledge and practices targeting general characteristics of ASD students, communication patterns, non-verbal behaviors, and professional development.

Table 1

#### *Questionnaire Blueprint for Instructors of ASD Students*

	Knowledge	Pedagogical Practices
Characteristics of ASD students	5-9	20-26
Communication patterns	10-14	27-30
Non-verbal behaviors	15-19	
Professional development	31-35	36-40

The first scale was labeled faculty knowledge. Work from several researchers, (Adreon & Durocher, 2007; Cai & Richdale, 2016; Gobbo & Shmulsky, 2012; McKeon et al., 2013; Shmulsky & Gobbo, 2013; Taylor, 2005; VanBergeijk et al., 2008; Williams, 2016) influenced the development of the items presented in this section. The authors suggested ASD students have difficulty decoding language, understanding language, communicating, working in groups, display poor executive functioning, and experience difficulty controlling behavior. Fifteen items

were developed to assess each faculty member's knowledge of ASD characteristics. Faculty members were prompted to rate their knowledge using “disagree”, “not sure”, or “agree” response options. These options were meant to resemble true or false options to capture knowledge with the inclusion of an option to reflect uncertainty.

The second scale assessed sound pedagogical practices, for ASD students supported by the literature (Adreon & Durocher, 2007; Brown & Coomes, 2015; Cai & Richdale, 2016; Grogan, 2015; Moriña & Carballo, 2017; Sarrett, 2018; Williams, 2016; Zeedyk et al, 2016) describing best practices to use with ASD students related to faculty behaviors, instruction, pedagogical practices, and classroom management. Eleven items were developed for this scale. Respondents were asked to rate the frequency with which they used pedagogical practices geared toward ASD students. The rating scale points are ‘never,’ ‘not often,’ ‘often,’ and ‘very often.’

With respect to professional development preferences, the authors (Brown & Coomes, 2015; Debrand & Salzberg, 2005; McKeon et al., 2013; Moriña & Carballo, 2017; VanBergeijk et al., 2008) listed types of professional development preferred by faculty members related to content knowledge, and pedagogical practices. Ten items were developed to assess faculty preferences. The rating scale consisted of ‘strongly disagree,’ ‘disagree,’ ‘agree,’ and ‘strongly agree.’

## **Reliability**

Survey instruments require the establishment of reliability to help ensure consistency. Fowler (2009) suggested that an instrument is reliable when individuals in like situations answer questions in comparable ways. One method to test an instrument's reliability is to assess the internal consistency. To estimate reliability of this instrument, internal consistency was evaluated using Cronbach's Alpha (Heo, Kim, & Faith, 2015). For the instrument to be

considered acceptable, a value of .7 or greater must be generated. Items affecting the instrument's score creating a rounded value below .7 were removed.

### **Content Validity**

A thorough review of the literature helped guide the development of the blueprint found in Table 1. After shaping the blueprint and the number of questions needed to address each topic, questions were developed using Dillman's (2007) work as a guide. Additionally, the theoretical framework along with the review conducted by a panel of three experts provided added content validity. Finally, the expert panel members examined each question to determine that the correct amount of questions were available to assess each category. The members of the panel chosen to participate in the review of the instrument each have extensive experience working with ASD students as classroom practitioners, counselors, leaders, advisors, and advocates. Additionally, each panel member currently works with ASD students in a higher education setting. Finally, the three expert panel members possess over 110 years of combined experience supporting ASD students.

The first expert panel member currently serves as a public-school psychologist for a local school system and adjunct instructor for several local community colleges as well as a local university. This expert has over 30 years of experience working with ASD students in the K-12 setting along with teaching others in the higher education environment how to support ASD students.

The second expert panel member serves as Assistant Professor of Academic Programs at a local university, and also works as a diversity educator serving various school systems and businesses. This expert possesses past experiences serving as a counselor at four-year universities as well as a professor providing recognition and support for ASD students.

The third expert panel member is a retired school superintendent who currently serves as a Veterans Officer at a local community college. Previously, this expert served as a classroom teacher, principal, and adjunct instructor working with students diagnosed with ASD.

The three panel members received an email found in Appendix E, in the fall of 2019 along with a paper copy of the survey found in Appendix F. A request to return the survey with all feedback within five business days is found in Appendix E. The email contains the purpose statement, the research questions, and the blueprint used to design the survey along with directions for evaluation and return of the information to the researcher.

The three panel members examined each item to determine that the item assessed that for which it was intended. Additionally, the directions for the survey as well as each item were evaluated for confusing or offensive language (Simon, Ercikan, & Rousseau, 2013). The panel members provided reasoning for identifying language as problematic. Confusing or offensive language was removed and replaced with language that is clear and not offensive. Groves, Fowler, Couper, Lepkowski, Singer, and Tourangeau (2004) suggested experts may help identify ambiguous language and provide suggestions to remedy the language. Finally, the expert panel members were asked to determine if items were missing. If at least two of the three expert panel members are in agreement that an item needs to be added, changed, or removed, the item was reviewed. However, the final decision to make changes was made by the primary researcher.

Because the questionnaire was distributed through Qualtrics, it was self-administered through the email system requiring that participants click the link for access to the questionnaire. Fowler (2009) recommended using all closed answer questions. The problem noted by Fowler (2014) with open-ended questions was the responses are many times ambiguous and unfinished, creating obstacles in coding. Additionally, it was recommended that questionnaires be designed

to require no more than 12 minutes to complete (Cox, 1996). A preliminary test to determine the amount of time needed to complete the survey was conducted with three faculty members who would not participate in the fall 2019 study. Each participant finished in less than ten minutes.

Four demographic questions were placed at the beginning of the survey with the first question requesting instructors identify their primary area of instruction (academic cluster), then number of years teaching experience, gender, and employment status (full-time or adjunct). The next part of the questionnaire contained an explanation of ASD characteristics while reassuring respondents that not everyone is well versed in their knowledge of ASD disabilities. After completing the knowledge section, the survey was locked so that respondents could not go back and change their responses to the knowledge items. It is important to establish a baseline of knowledge with which to compare. Therefore, the final questionnaire item asked professors if they can recognize an ASD student when he or she is enrolled in their community college class.

### **Procedure**

An invitation to participate in the study was emailed to the vice presidents at three rural community colleges in the summer of 2019. The letter may be found in Appendix A. Upon confirmation from the three institutions and acceptance of the research proposal by the Institutional Review Board at Old Dominion University, a letter with detailed instructions was sent out in September of 2019 to the vice president at each institution. The vice president then emailed each faculty member with a request to participate. The first correspondence to faculty may be found in Appendix B. This request to participate included incentives to be entered in a drawing for a gift card along with a pamphlet designed to provide suggestions of additional practices to support ASD students. Faculty members at each institution received a follow-up email from their vice president 10 days later, with a final request to participate. The

correspondence may be found in Appendix C. The questionnaire took less than ten minutes to complete.

All data were collected using the online password protected program Qualtrics. The primary researcher used a personal laptop that requires a password to gain entry. No individual identifiers were used, and pseudonyms were used in place of the college names. Finally, all data were reported in aggregate.

### **Data Analysis**

The independent variables for this study included the primary area of instruction (academic cluster), the number of years as a faculty member, gender, and employment status (full-time or adjunct). Responses to the Likert-type scale items were analyzed using descriptive statistics. Scale scores were calculated as the average of ratings of items assessing the constructs.

For the first three research questions reflecting knowledge, practices, and professional development, descriptive statistics were employed. More specifically, the frequency and percentage of respondents were calculated by response category. The means and standard deviations by item and scale were reported. Independent t-tests and analysis of variance (ANOVA) tests were used to determine if significant differences existed by scale.

The fourth research question determined whether responses differed by demographic characteristics. A multivariate analysis of variance (MANOVA) test was conducted to evaluate whether scores on each scale differed depending on the primary area of instruction (academic cluster), the number of years as a faculty member, gender, and employment status (full-time or adjunct).

## Limitations

Groves (2011) reported respondents may exhibit “social desirability bias” when responding to a survey. When surveying college faculty members, one area where “social desirability bias” may be a concern is in the classroom. For example, questions relating to the amount of assistance given to students with disabilities in the classroom to match essential accommodations required by disabilities service personnel may be over-reported. Conversely, faculty members may under-report undesirable behaviors such as reporting discipline issues associated with students with disabilities in the classroom.

Volunteer bias is inevitable as professors will be sent an email requesting that they participate in the study. Their responses are voluntarily based on their interest in the topic. Because volunteers completed the survey, linked from college email accounts, the findings may not reflect exactly how they feel. Answers may be more positively skewed toward ASD individuals in light of completing a survey through a college email address. Also, professors who have never attended professional development, may seek guidance from those who received professional development, thus causing contamination of the data.

The participants selected were a convenience sample due to the ability to obtain email addresses within the institutions. Because the institutions used in this study consist of three rural institutions in the southeastern part of the United States, the findings may not be generalized to other parts of the southeastern part of the United States or the country as a whole. Additionally, a future study including suburban and urban community colleges, may provide more robust data.

The cross-sectional study gathers information in the present and does not evaluate attitudes over time. Conducting a longitudinal study may provide additional data on how faculty members’ attitudes toward ASD students change over time. Because faculty members self-



report information in the surveys, it may be beneficial to conduct additional studies using observations and focus groups obtaining a more complete collection of data. Finally, obtaining additional information about the content of previous trainings may be beneficial when designing professional development.

The primary researcher has a son diagnosed with ASD who attended a community college. Due to firsthand experiences as a parent, researcher bias may be present.

### **Summary**

This methodology section describes the design of a quantitative instrument used to identify knowledge of ASD, teaching practices, and professional development used by community college educators. Using a survey designed specifically for community college educators, data were collected from three rural institutions in the VCCS, and statistical significance was evaluated through SPSS software. Additionally, it was the hope of the primary researcher that the data collection would lead to the creation of effective professional development for all community college educators. Because ASD students are attending community college campuses in large numbers, educators must be prepared to meet these students with knowledge of both the disability and classroom strategies that promote success. A description of the findings may be found in chapter four.

## CHAPTER FOUR

### FINDINGS

Chapter four presents the findings from the professor questionnaire, *Knowledge, Instructional Methods, and Preference for Professional Development to Support Autism Spectrum Disorder (ASD) Students at Community Colleges Instrument*, conducted during late September through early October 2019. This information includes inferential statistics as well as descriptive statistics calculated using SPSS software. The alpha level was set to .05 to determine statistical significance across all inferential tests.

According to the College Navigator, which is located on the National Center for Education Statistics website (n.d.), the total population of faculty employed at the three rural institutions who received invitations to participate in the survey is 430. The questionnaire was attempted by 160 faculty members, creating a 37 percent response rate. While looking through the data, it was discovered that some participants answered only a few of the survey questions, while others skipped multiple questions. Therefore, the data were cleaned, eliminating all participants with fifty percent or more unanswered questions. Upon completion of the cleaning process, responses totaled 153, providing a response rate of 36 percent.

The demographic information found in Table 2 represents the respondents answers to four questions: what is your area of instruction, number of years as a community college faculty member, gender, and employment status. Over 60 percent of faculty members responding to the questionnaire came from two academic areas. The first, Arts, Humanities, and Communication consisting of Fine Arts (Art, Music, Theater), Graphic Design, and Liberal Arts represented by 37 respondents and the second, Science, Information Technology, Engineering, and Business technologies consisting of Automotive, Advanced Manufacturing, Computer and Network

Support, Computer Science, Cybersecurity, Electronics and Computer Technology, Electronics Technology, Engineering, Information Systems Technology, and Science had 56 contributors. The category of Business, Management, Marketing, and Financial consisting of Accounting, Administrative Support, Business Administration, and Management produced 12 participants, while Education and Human Services consisting of Criminal Justice, Early Childhood Development, Education, General Studies, and Police Science yielded 21 participants. Finally, Health Science consisting of Health Information Management, Health Science Preparation, Nursing, Nursing Assistant, Pharmacy Technician, and Practical Nursing, Veterinary Sciences, Agriculture, Dental, and Radiology generated 27 participants.

The second question, number of years as a community college faculty member, produced a relatively homogenous grouping among three of the four categories, 0-5 years with almost 27 percent, 6-10 years with 27.5 percent, and over 15 years with the highest number of respondents, almost reaching 31 percent. The number of participants in the 11-15 years' category was the smallest, with 15 percent of participants represented. The response to the gender question found that males comprised 46 percent of the respondents, and females were 54 percent, creating a reasonably homogenous mix in the gender category.

The final question requested that respondents identify their employment status, full-time or part-time. The results proved to be a little more skewed toward full-time status than part-time status. Full-time status produced over 55 percent of participants and part-time status, just over 44 percent.

Table 2

*Demographics*

	Number	Percentage
<b>Area of Instruction</b>		
Arts, Humanities, and Communication	37	24.2
Business, Management, Marketing and Financial	12	7.8
Education and Human Services	21	13.7
Health Sciences	27	17.7
Science, Information Technology, Engineering, and Business Technologies	56	36.6
Total Area of Instruction	153	100
<b>Number of Years as a community college faculty member</b>		
0-5 years	41	26.8
6-10 years	42	27.5
11-15 years	23	15.0
Over 15 years	47	30.7
Total Number of Years	153	100
<b>Gender</b>		
Male	70	45.8
Female	83	54.2
Total Gender	153	100
<b>Employment Status</b>		
Full-time	85	55.6
Part-time	68	44.4
Total Employment Status	153	100

Cronbach's alpha was used to determine the internal consistency of the questions within the instrument. Several items were removed from the questionnaire in order to achieve an acceptable alpha for each scale. The final instrument is in Appendix G. The Cronbach's alpha for the draft scale, ASD Knowledge, was .69.

The first 11 items in the instrument collected data on knowledge of ASD by asking faculty members to answer 'disagree,' 'not sure,' or 'agree' to statements about ASD students' characteristics, communication patterns, and non-verbal behaviors. Five items were reverse coded in an attempt to have participants thoughtfully consider responses and avoid a response pattern. Items were marked correct or incorrect based on answers the literature most identified as correct. Descriptive statistics were calculated by item and scale.

The first five questions in Table 3 addressed ASD characteristics. Two of the items were answered with above 75 percent accuracy. One item addressed group work, and the other concentrated on flexibility of schedule. One item concentrating on cognitive ability was answered with slightly over 50 percent accuracy, and another item focusing on organization was answered with just under 48 percent accuracy. The fifth question concentrating on executive functioning behaviors was answered with slightly over 42 percent accuracy.

One item addressing ASD communication patterns revealed that 50 percent of respondents provided the correct response. However, 32 percent of respondents reported they were not sure if ASD students have difficulty answering questions in the classroom.

The third and final section concentrated on ASD students' non-verbal behaviors and reflected the highest overall group percentages for the first 11 items. ASD students display anxious behaviors was the highest with 81 percent correct response rate, ASD students make no eye contact when speaking was second with almost 70 percent correct response rate, and ASD

students employ repetitious body gestures scored at over 66 percent correct response rate. ASD students employ unusual facial expressions reflected a 60 percent correct response rate; the lowest correct response rate was ASD students behave in ways that are indistinguishable from other students, with a score of almost 56 percent correct.

When evaluating community college faculty members' knowledge and the extent they can recognize students with ASD in their classrooms, at least 60 percent of the faculty members participating in this study were able to correctly identify an ASD student's non-verbal behaviors. However, these same faculty members were not as successful recognizing characteristics of ASD or communication patterns, as only two of the six items were correctly answered by more than 60 percent.

Table 3

*ASD Knowledge*

ASD students	Disagree	Not Sure	Agree	Total	Mean	Standard Deviation
have the cognitive ability to appropriately decode abstract content with little to no assistance from the instructor.	<b>78</b> <b>51.0%</b>	45 29.4%	30 19.6%	153	2.31	.782
display poor executive functioning behaviors.	51 33.3%	37 24.2%	<b>65</b> <b>42.5%</b>	153	2.09	.869
enjoy flexibility and have no issue with changes to their schedules.	<b>140</b> <b>91.5%</b>	12 7.8%	1 0.7%	153	2.91	.311
prefer group work affording personal interaction.	<b>115</b> <b>75.2%</b>	30 19.6%	7 4.6%	152	2.71	.547
are consistently organized.	<b>73</b> <b>47.7%</b>	48 31.4%	31 20.3%	152	2.28	.782
have difficulty answering questions in the classroom.	26 17.0%	50 32.7%	<b>76</b> <b>49.7%</b>	152	2.33	.753
display anxious behaviors.	7 4.6%	22 14.4%	<b>124</b> <b>81.0%</b>	153	2.76	.523
make no eye contact when speaking.	23 15.0%	23 15.0%	<b>107</b> <b>69.9%</b>	153	2.55	.743
employ unusual facial expressions.	14 9.2%	47 30.7%	<b>91</b> <b>59.5%</b>	152	2.51	.661
employ repetitious body gestures such as hand flapping, snapping, or clapping.	14 9.2%	37 24.2%	<b>102</b> <b>66.7%</b>	153	2.58	.656
behave in ways that are indistinguishable from the other students.	<b>85</b> <b>55.6%</b>	33 21.6%	35 22.9%	153	2.33	.826

\*The response the literature most identifies as correct is in bold font.

The scaled ASD Knowledge score was calculated by adding scores and obtaining the means for each category, characteristics, communication patterns, and non-verbal behaviors. Next, the three means were used to calculate the combined mean for the knowledge scale. The scaled Knowledge score produced a mean score of 2.45 and a standard deviation of .40, indicating the majority of participants' knowledge of ASD is half-way between the 'not sure' and 'agree' choices.

### Research Question One

The first research question: 'To what extent do faculty members think they can recognize students with ASD in their classrooms?' was evaluated by asking faculty members on the final item of the survey if he or she could 'recognize a student with ASD when he or she is enrolled in my community college classroom.' The findings shown in Table 4 indicate that almost 70 percent of faculty either do not think they can recognize a student with ASD, or they are not sure.

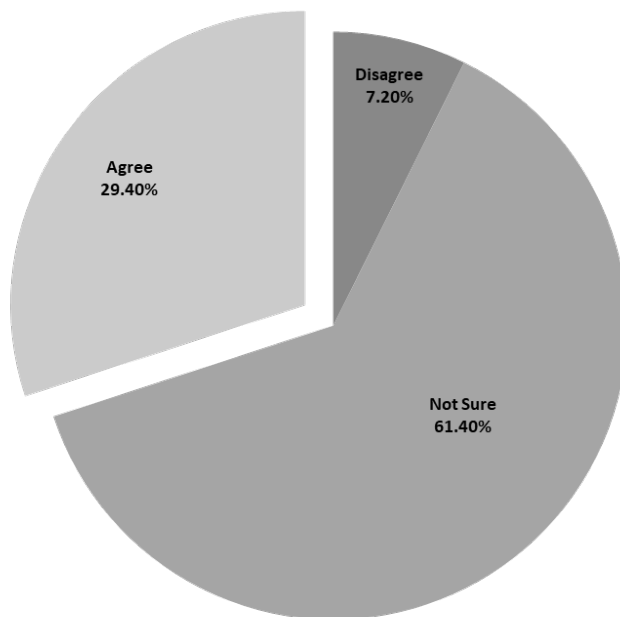
Table 4

#### *ASD Recognition*

Question	Disagree	Not Sure	Agree	Total
I recognize a student with Autism Spectrum Disorder when he or she is enrolled in my community college class.	11 7.2%	94 61.4%	45 29.4%	150

To demonstrate the differences in the ASD recognition findings further, Figure 3 provides a graphical representation of the data. As demonstrated in the graphic, the majority of community college faculty do not know if they can recognize a student with ASD in their classroom (combining the not sure and disagree items).





*Figure 3. I Recognize a Student with ASD in My Community College Classroom.*

The ASD recognition score produced a calculated mean of 2.23 and standard deviation of .57. The mean score 2.23 is close to the 'not sure' item, suggesting that faculty members do not know if they can recognize a student with ASD.

### **Research Question Two**

The second research question, 'What pedagogical practices do community college faculty members utilize that may support ASD students?' was assessed by asking faculty members questions with response choices 'never,' 'not often,' 'often,' and 'very often.' The calculated Cronbach's alpha for the Pedagogical Practices scale was .71.

The findings from the group of four questions found in Table 5 indicate that over 63 percent of faculty members either 'often' or 'very often' use pedagogical practices that support ASD characteristics in the classroom. The highest practice identified was notifying students in advance of a schedule change at 93 percent, and the lowest was providing multiple formats for

engagement in the classroom at 63 percent when combining the ‘often’ and ‘very often’ responses.

Table 5

*Pedagogical Practices – Likert Responses*

Response	Never	Not Often	Often	Very Often	Total
I notify students in advance of a schedule change.	1 0.7%	8 5.2%	51 33.3%	92 60.1%	152
I provide multiple formats for delivery of new content.	1 0.7%	23 15.0%	69 45.1%	59 38.6%	152
I provide multiple formats for students to demonstrate understanding.	5 3.3%	36 23.5%	70 45.8%	41 26.8%	152
I provide multiple formats for engagement in the classroom.	6 3.9%	49 32.0%	59 38.6%	38 24.8%	152

Table 6 provides the mean for each item in the pedagogical practices section. The score for each item ranges from a 1,2,3 or 4, and the mean for each item should be greater than a 2.5 to be considered using appropriate pedagogical practices.

The first two items reflect a mean score between the ‘often’ and ‘very often’ items on the scale. The other two items, providing multiple formats to demonstrate understanding and multiple formats for engagement, scored just below the ‘often’ scale but above the suggested mean of 2.5.

Table 6

*Pedagogical Practices- Mean and Standard Deviation*

Response	<i>M</i>	<i>SD</i>
I notify students in advance of a schedule change.	3.54	.629
I provide multiple formats for delivery of new content.	3.22	.721
I provide multiple formats for students to demonstrate understanding.	2.97	.801
I provide multiple formats for engagement in the classroom.	2.85	.844

Figure 4 provides a graphical illustration of each of the four items in the pedagogical practices grouping displayed as combined (full-time and part-time), full-time, and part-time means. Full-time faculty are at or above the mean for all questions, while part-time faculty are below the mean for three of the four questions.

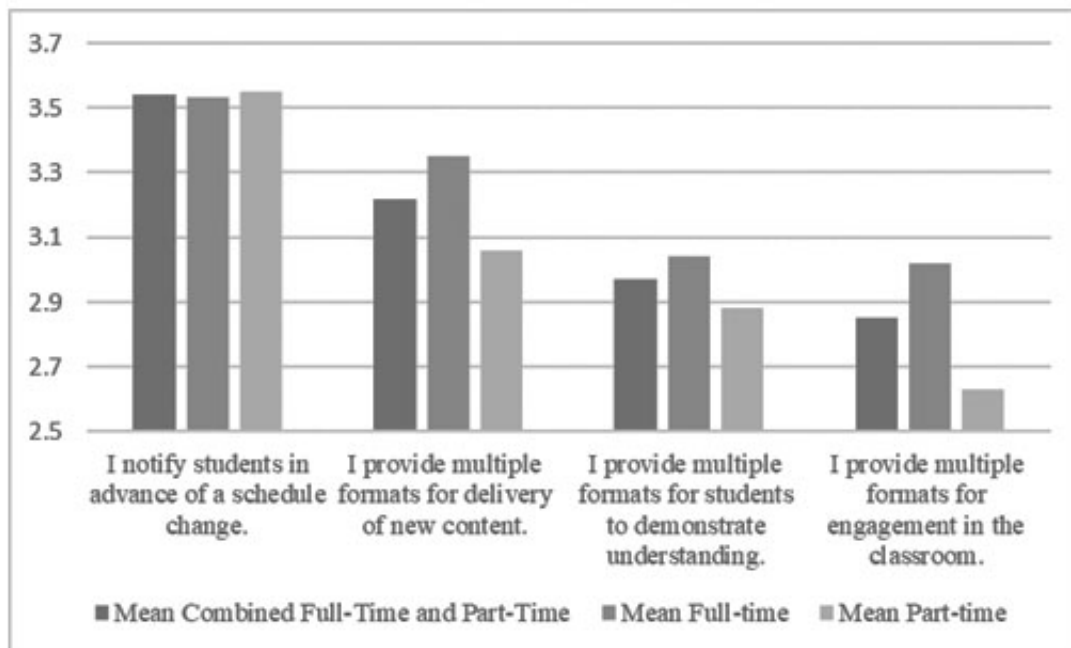


Figure 4. Pedagogical Practices Mean Scores.

The scale score for pedagogical practices was determined by calculating the mean of the four items in this grouping. The pedagogical practices scale yielded a mean score of 3.14 and a standard deviation of .55. The mean 3.14 is above the value three, associated with the Likert item ‘often,’ indicating community college faculty members often use appropriate pedagogical practices to support ASD students.

### **Research Question Three**

The third research question ‘What type of professional development do community college faculty members perceive may best help them to support ASD students?’ was evaluated by providing a list of professional development items and requesting a response of ‘strongly disagree,’ ‘disagree,’ ‘agree,’ and ‘strongly agree.’ Cronbach’s alpha for the Professional Development scale was .91.

The findings from the first five questions found in Table 7 on pedagogical knowledge scored above 85 percent when combining the ‘agree’ and ‘strongly agree’ responses. One item, federal law requirements, scored the lowest at just above 85 percent. The first four questions focusing on accommodations, communication patterns, non-verbal behaviors, and where to refer for support scored 92.1 percent, 92.1 percent, 94.2 percent, and 93.5 percent, respectively.

Each of the remaining five questions also scored above 85 percent with the physical arrangement of the classroom environment scoring the lowest at just above 85 percent. The remainder of items, instructional strategies, classroom management strategies, best use of language, and delivery of feedback each scored 95.4 percent, 94.7 percent, 90.2 percent, and 92.2 percent, respectively.

Table 7

*Professional Development Preferences- Likert Responses*

I would prefer professional development related to ASD to focus on:	Strongly Disagree	Disagree	Agree	Strongly Agree	Total
how accommodations students have in K-12 school changes when transitioning to college.	3 2.0%	6 3.9%	109 71.2%	32 20.9%	150
how to recognize communication patterns.	1 0.7%	7 4.6%	101 66.0%	40 26.1%	149
how to recognize non-verbal behaviors.	1 0.7%	4 2.6%	98 64.1%	46 30.1%	149
where to refer for support.	1 0.7%	5 3.3%	72 47.1%	71 46.4%	149
federal law requirements that mandate professors provide academic support for students with disabilities.	2 1.3%	16 10.5%	75 49.0%	56 36.6%	149
classroom instructional strategies to aid ASD students.	1 0.7%	2 1.3%	80 52.3%	66 43.1%	149
classroom management strategies to aid ASD students.	1 0.7%	3 2.0%	83 54.2%	62 40.5%	149
physical arrangement of the classroom environment.	0 0%	19 12.4%	92 60.1%	39 25.5%	150
best use of language during instruction.	1 0.7%	11 7.2%	88 57.5%	50 32.7%	150
delivery of feedback.	0 0%	9 5.9%	89 58.2%	52 34.0%	150

Table 8 reflects the mean and standard deviation for each item of the professional development preferences grouping. Scaled items were scored 1,2,3, and 4, ranging from low to high. All mean scores were above three, indicating community college faculty have preferences for professional development and favor all ten items. The lowest mean was associated with two items, how accommodations students have in K-12 change when transitioning to college and the physical arrangement of the classroom both scoring 3.13. The highest mean was associated with where to refer for support at 3.43.

Table 8

*Professional Development Preferences – Mean and Standard Deviation*

Response	<i>M</i>	<i>SD</i>
how accommodations students have in K-12 change when transitioning to college.	3.13	.564
how to recognize communication patterns.	3.21	.549
how to recognize non-verbal behaviors.	3.27	.541
where to refer for support.	3.43	.596
federal law requirements that mandate professors provide academic support for students with disabilities.	3.24	.694
classroom instructional strategies to aid ASD students.	3.42	.599
classroom management strategies to aid ASD students.	3.38	.565
physical arrangement of the classroom environment.	3.13	.609
best use of language during instruction.	3.25	.612
delivery of feedback.	3.29	.572

The professional development preferences scale score was determined by adding scores and calculating means in each of the two categories, knowledge and pedagogical practices. The

two means were then combined to calculate the mean for the professional development preferences scale. The Professional Development Preferences scale mean was 3.28 and the standard deviation was .43. The mean 3.28 is above the suggested mean value three, associated with the Likert item 'agree,' signifying community college faculty members have preferences for professional development to support ASD students.

#### **Research Question Four**

The final research question addressed the following: 'How do faculty members differ in their ASD recognition, classroom practices, and professional development preferences based on academic discipline, gender, years of experience, and employment status?' was first evaluated using the multivariate analysis of variance (MANOVA) test. When one or more variables were determined significant, follow-up tests were conducted. Follow-up tests consisted of analysis of variance (ANOVA) and Scheffe post hoc contrasts when more than two groups were present.

The MANOVA test was used to check for statistically significant differences between three continuous dependent variables (I recognize a student with ASD, professional development preferences, and pedagogical practices) and four independent variables (academic cluster, number of years as a community college faculty member, gender, and employment status). Three of the independent variables did not produce significant differences. On all three scales, there was no difference between faculty members in the five academic clusters, Arts, Business, Education, Health Sciences, or Sciences. Also, the number of years a faculty member is employed did not show differences among those who have less or more experience teaching in their recognition of ASD students, their professional development preferences, or their pedagogical teaching practices. Additionally, females have no better recognition of ASD

students, professional development preferences, or pedagogical practices than males; indicating there are no gender differences when comparing these two groups of faculty members.

One independent variable, employment status, revealed statistical significance when evaluating differences between the three continuous dependent variables. In analysis of the Wilks' Lambda values, employment status, displayed a statistically significant difference of .023 as shown in Table 9.

Table 9

*One-way MANOVA with Employment Status*

Variable	F	df	p	Partial Eta Squared
Employment Status	5.29	1	.023*	.036

*Note.* \* $p < .05$

When comparing the two groups, full-time and part-time, there are differences in the pedagogical practices of community college faculty members. These two groups do not, however, show differences in their recognition of ASD students or professional development preferences to support ASD students.

Table 10 provides the demographic information of the full-time and part-time faculty groups. The 85 full-time employees scored a mean of 3.24, while the 67 part-time employees had a mean score of 3.02.

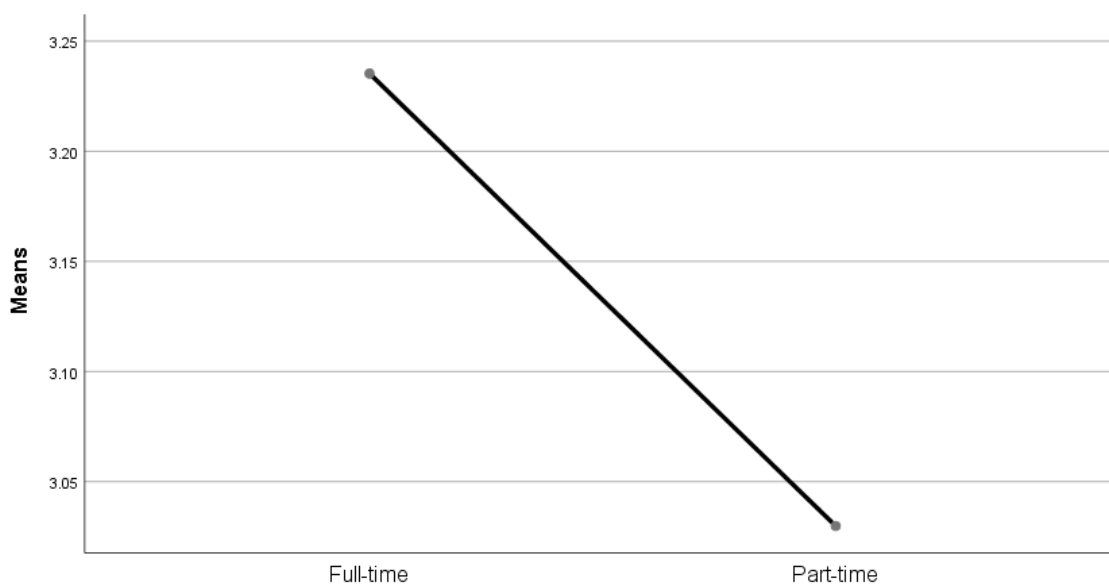
Table 10

*ANOVA – One Independent Variable and One Continuous Dependent Variable*

Variable	M	SD	N
Full-time	3.24	.52	85
Part-time	3.02	.57	67



The part-time employees had a mean score that indicated pedagogical practices are ‘often’ implemented, while full-time employees had a higher mean score, indicating they implement pedagogical practices between ‘often’ and ‘very-often.’ Figure 5 further graphically demonstrates differences between the full-time and part-time faculty members’ pedagogical practices.



*Figure 5. Mean Differences Between Employment Status when Reviewing Pedagogical Practices.*

In summary, the findings from the research questions indicated that faculty are not sure if they recognize a student with ASD in their classroom. They do, however, report that they use pedagogical practices that often support ASD students. Additionally, faculty members ranked all options favorably for professional development to support ASD students. Finally, a statistically significant difference was found between groups of faculty members who are employed full-time versus part-time and their pedagogical practices.

In Chapter 5 there is a discussion of the topic in light of the literature. Included in the discussion is a restatement of the purpose of the study, along with the research questions. A summary of major findings and recommendations for future research will follow.

## **CHAPTER 5**

### **DISCUSSION**

Chapter five begins with an introduction of the topic, an overview of the problem, and a restatement of the purpose and research questions. A review of the methodology and summary of the major findings follow. The chapter concludes with implications for action and recommendations.

Students diagnosed with Autism Spectrum Disorder (ASD) are entering community colleges in large numbers. This enrollment increase is due to three main factors: the significant increase in number of ASD students successfully completing K-12 with a minimum of a standard diploma, ASD students' desire to remain close to home while attending college (Gobbo & Shmulsky, 2012), and the community colleges' reputation for providing support for all who can learn (Lang, 2006). White, Ollendick, and Bray (2011) reported ASD students' success in K-12 is due to their above-average intelligence leading to their enrollment in college. Additionally, Section 504 of the Vocational Rehabilitation Act of 1973 (1973) and the Americans with Disabilities Act (ADA) (1990), laws designed to ensure an appropriate equal education, have also contributed to ASD students' success. Finally, the desire for many ASD students to stay close to home is the result of needed support from family members and familiarity of relationships established with high school peers also attending community college (VanBergeijk, Klin, & Volkmar, 2008).

The number of diagnoses has continued to increase over the years, and currently, one in 59 individuals are diagnosed with ASD (ASD, 2018). Wei, Christiano, Yu, Blackorby, Shattuck, and Newman (2014) also noted that 80 percent of autistic college students will attend a community college sometime during their lifetime. Nonetheless, these students come to the college with impairments that are not visible or easily noticed, causing many instructors to refuse

to provide support or are unaware of the type of support to provide (Grogan, 2015). Community college instructors must be equipped and prepared to help ASD students succeed by increasing their awareness of the characteristics of ASD while keeping in mind ASD students' low rates of college completion (Gobbo & Shmulsky, 2014).

### **Context**

Because of the large number of ASD students coming to community colleges in need of specific and significant accommodations, faculty members may be at a disadvantage in recognizing and assisting this unique population of students. Additionally, many community college faculty members are content experts who may not have received postsecondary instruction on teaching methodologies (Moriña, Cortés-Vega, & Molina, 2015). Although there is professional literature on supports and professional development to assist faculty in bolstering ASD students at four-year colleges and universities, this literature is scarce for community college faculty (Zeedyk, Tipton, & Blacher, 2016). The lack of empirical examination of this topic is surprising because community college faculty members work with large numbers of students who are not ready for college-level academics; community college faculty members help these student to be more successful in college and more productive as citizens (Mellow & Heelan, 2008).

### **Purpose Statement**

The purpose of this study was to explore community college faculty members' knowledge of ASD students and the classroom practices utilized that may provide support for ASD students. This study will also help to advance the understanding of the type of professional development most effective to improve ASD students' success in college as perceived by community college faculty members. Academic clusters were evaluated to determine if

differences exist in ASD recognition, classroom practices, and perceived professional development between certain subgroups of faculty members.

### **Research Questions**

This study was guided by the following research questions:

1. To what extent do faculty members think they can recognize students with ASD in their classrooms?
2. What pedagogical practices do community college faculty members utilize that may support ASD students?
3. What type of professional development do community college faculty members perceive may best help them to support ASD students?
4. How do faculty members differ in their ASD recognition, classroom practices, and professional development preferences based on academic discipline, gender, years of experience, and employment status?

### **Review of Methodology**

The lack of empirical research on community college faculty working with ASD students in the classroom required the establishment of an instrument capable of collecting large amounts of data in a short period of time. To reach this collection goal, a survey instrument was designed based on a comprehensive review of the literature with the responsibility to collect quantitative data from community college faculty members. Faculty members at three rural community colleges in the Virginia Community College System (VCCS) received an emailed link to the survey from their college vice-president along with information stating the intent of the study and incentives to participate. The survey was conducted through Qualtrics, an online survey

program, and was open for two weeks. A follow-up email was sent one week before the close of the survey with a reminder to participate.

A descriptive and comparative design was employed to evaluate the results of the survey. The dependent variables generated questionnaire scale scores assessing ASD recognition, classroom practices, and professional development preferences. Independent t-tests, analysis of variance (ANOVA) tests, and Multivariate analysis of variance (MANOVA) tests were used to look for significance between groups by combining the dependent variables scale scores with the independent variables (gender, years of experiences as a college instructor, employment status, and academic disciplines). The survey instrument was distributed to 430 faculty members, and there was a response rate of approximately 36 percent (n=153). There were 70 males and 83 females participating in the study.

### **Summary of the Major Findings**

The major findings include four topics, knowledge and recognition of ASD, pedagogical practice scores of faculty members, faculty members who do not want professional development, and how employment status affects pedagogical practice. The findings of this study are particularly important to ASD students' success in college because the faculty member is often the contact the student trusts the most (Tipton & Blancher, 2014).

**Knowledge and recognition of ASD.** The first eleven items in the questionnaire addressed faculty knowledge of ASD student characteristics, communication patterns, and non-verbal behaviors. Six of the eleven items answered indicated that 60 percent or more of the faculty participants could identify the correct answer, as determined by the literature. However, for five of the eleven items, less than 60 percent responded with the correct answer as determined by the literature. Of those five items, less than 50 percent of the respondents could

correctly identify the three items that focused on ASD students' executive functioning behaviors (planning and following through on tasks), their overall ability to be consistently organized, and their difficulty answering questions in the classroom environment. The first two items, executive functioning and organization, evaluated characteristics of ASD students, and the third item, answering questions in the classroom, evaluated ASD students' communication patterns.

The three items on which the highest proportion of respondents had the correct responses in the set of knowledge questions focused on ASD students' flexibility and having no issue with a change in their schedule, their anxious behaviors, and their preference for group work. The items, flexibility and group work, evaluated characteristics of ASD and anxiety, evaluated non-verbal behaviors. When comparing responses by categories, less than 60 percent responded with the correct answer as determined by the literature to three of the five questions addressing ASD characteristics, while only two of the five questions concentrating on non-verbal behaviors were answered by less than 60 percent of the participants responding with the correct answer. This comparison may lead to the conclusion that nonverbal behaviors of ASD students may be more widely known by community college professors than specific characteristics of ASD.

Faculty members answered the final question on the survey "I recognize a student with ASD when he or she is enrolled in my community college class," with 70 percent responding either 'not sure' or 'disagree.' The ASD Recognition scale score produced a mean of 2.23. This score is closer to the 'not sure' response, which was assigned a Likert scale value of two. The first 11 items in the survey generated a calculated ASD Knowledge scale score with a mean of 2.45. This score lies almost half-way between the 'not sure' and 'agree' items. It is interesting to compare the knowledge scale score to the recognition scale score. These data indicate that, although community college faculty are not comfortable reporting that they recognize a student

with ASD, they are fairly competent with knowledge of ASD student characteristics and non-verbal behaviors. These findings indicate the importance of the ASD student reporting to the office of disability services who in turn will inform the faculty member of the students' academic accommodations.

**Pedagogical practice scores of faculty members.** The data generated by the items on pedagogical practices by community college faculty members were positive. The Pedagogical Practices scale score produced a mean of 3.14. A score of three would indicate that faculty members 'often' employ appropriate practices, and a score of four would indicate that faculty members 'very often' employ appropriate practices. This Pedagogical Practices mean score of 3.14 would indicate that the community college faculty members responding to the questionnaire report they 'often' employ appropriate practices to support ASD students

**Faculty members who do not want professional development.** Faculty members reported that they strongly agree with the professional development options presented in the questionnaire. This finding was not surprising as the faculty members volunteered to participate in the study, possibly skewing the data to more positive answers. Additionally, many participants completed the questionnaire during the workday, which may have influenced their answers to be more positive toward the professional development options than if they had chosen to complete a similar survey, not endorsed by the vice-president, from home. It was, however, interesting to examine the responses of those who answered 50 percent or more of the items with negative perceptions of professional development; either they 'strongly disagree' or 'disagree' with the options presented for professional development.

A total of six respondents answered 50 percent or more of the questions that they do not wish to participate in professional development by responding 'strongly disagree' or 'disagree.'



These individuals included two full-time, males in Education and Human Services; two part-time, one male and one female in Arts; one full-time female in Science; and one part-time female in Health Sciences. These data produced an equal number of males and females and an equal number of full-time and part-time individuals. It was interesting that two of the six participants reported being in the academic cluster, Education and Human Services, suggesting that they may have received instruction on ASD in their field of expertise, Education, Health, or Psychology. In addition, both individuals in Education and Human Services indicated 11 years or more of experience. At the same time, those in the Arts and Science reported six to ten years, and the one individual in Health listed five years or less of experience.

Additionally, five out of the six participants reported they did not see a need for professional development on federal law requirements that mandate professors to provide academic support for students with disabilities, the physical arrangement of the classroom, or delivery of feedback. Examining the six respondents' answers further, three reported that they could recognize a student with ASD, and three reported that they were not sure if they could recognize a student with ASD.

**Employment status affects pedagogical practices.** Testing for statistical significance between the independent variables and the continuous dependent variables produced a difference between two groups (full-time and part-time employment status) when evaluating pedagogical practices. The full-time participants represented 56 percent of the group while the part-time participants made-up 44 percent of the group. The full-time participants reported that they would 'often' and 'very often' practice appropriate pedagogical practices signified by a mean of 3.24. The part-time participants reported that they would 'often' practice appropriate pedagogical practices represented by a mean of 3.02.

### **Findings Compared to the Literature**

Although research is limited consisting of studies with community college faculty specific to ASD students, Cook, Rumrill, and Tankersley (2009) created an online quantitative questionnaire limited to four-year university faculty. Their study focused on laws, policies, teaching methods, and characteristics of students with disabilities. The Cook et al. (2009) instrument was similar in length (38 questions) with the current study (41 questions), and both studies were conducted through the email system. The current study confirmed the findings of the Cook et al. (2009) research in that both studies noted the need to have more resources and supports available to assist in the understanding and advancement of students with disabilities.

Brown and Coomes (2015) also used a questionnaire to collect data from higher education personnel on supports their colleges provided to ASD students. The participants in the Brown and Coomes (2015) study were the disability services personnel at two-year public institutions instead of faculty members. The findings of the study indicated that ASD students received academic supports in the classroom almost all of the time while sensory supports were provided one-third of the time. The finding from the Brown and Coomes (2015) study indicated the need for specifically targeted supports from disabilities services to aid the ASD student. The findings of the current study make it easier for leaders to determine if faculty understand the supports needed as outlined by Brown and Coomes' (2015) assertion that specific supports and pedagogical practices can help ASD students to be successful.

### **Implications**

By using the instrument developed and tested in this study, community college leaders can now examine whether faculty members are competent in both their knowledge of ASD and pedagogical practices to support ASD students. Should it be determined that faculty members are not competent, this instrument will help point to the areas where community college faculty

members need to improve their pedagogical practices. Professional development curriculum can then be designed based on identified needs to provide specific support for developing proficient pedagogical practices. Professional development should be implemented and follow-up assessments including classroom observations should be implemented to determine if the curriculum and professional development is effective or in need of modifications.

Faculty members from three rural community colleges in the Virginia Community College System completing the survey instrument were found to be fairly competent in their knowledge of ASD. Because the focus at community colleges is on teaching, this finding was not unexpected. Each semester these community college faculty members teach more courses than their colleagues at any other division of higher education institutions (Mellow & Heelan, 2008). Moreover, these faculty members often take students who are not prepared academically, have experienced failures in school, have experienced language, mobility, or emotional barriers, and help these students succeed through persistence and experience of what special populations of students need in terms of support or extra help (Mellow & Heelan, 2008). Faculty members do rely on students, along with disabilities services staff, to provide documentation of a disability along with the accommodations necessary to help the student receive a fair and equal education. As the current study indicates, without documentation, many faculty members are uncomfortable diagnosing the student or making accommodations they think are suitable even though the faculty members are fairly knowledgeable.

Faculty members who have no knowledge of ASD will have even more difficulty recognizing and assisting these students. For this reason, the instrument developed in this study will prove useful in identifying knowledge building areas of ASD for community college faculty members.

Universal Design for Learning (UDL) permits all students to access classroom content in the way that best suits their learning needs (Grogan, 2015). Students with various learning styles, not just those with learning disabilities, are given an option of multiple methods to prove mastery of content. Providing community college faculty members an opportunity through professional development to not only realize the benefits of UDL but also employ these newly acquired UDL practices in the classroom will be a valuable first step to making classrooms across campus more inclusive. In most cases, UDL serves as an academic “counterbalance” in the classroom and benefits all students, not exclusively those students diagnosed with ASD.

The community college focuses on improving pedagogical practices more than any other institution within the higher education community in the United States. This constant improvement leads to the education of many students possessing varied abilities and goals as well as unique ideas of what success means. Success may be the desire to transfer to a four-year university, the opportunity to find a job after developing a new skill, or the opportunity to develop socially. Therefore, the high mean score indicating community college faculty members ‘often’ use pedagogical practices that support ASD students in this study was not surprising. If ASD students are supported and successfully complete programs of study, certificates, or credentials, they will expectantly seek employment and participate in the local workforce.

All community college faculty members, however, do not practice the same level of pedagogical practices to support students. Specifically, two groups demonstrating differences are full-time and part-time faculty members. Full-time community college faculty members who focus on teaching as well as carry heavy teaching loads practice appropriate pedagogical practices ‘often’ and ‘very often.’ Part-time faculty members who make up a large part of the workforce in community colleges indicate that they ‘often’ practice appropriate pedagogical

practices. In many instances, these part-time faculty members do not have the same opportunities to be mentored or receive the benefit of professional development to learn and develop strong teaching methodologies as do their full-time colleagues. Many part-time community college faculty members also teach at night or online and may not receive incentives that could encourage participation in professional development. Community colleges also employ part-time personnel to fill vacant positions due to their low cost and the need to meet budgets. But it is important to focus on ensuring the pedagogical practices of part-time faculty members are equitable to that of the full-time faculty member. Therefore, part-time faculty members must focus on pedagogical improvement through required professional development. To ensure full participation a monetary incentive may accompany the successful completion of the professional development. Based on the findings of the current study, it is clear that more must be done to improve best pedagogical practices.

One item in the professional development section of the questionnaire that was rated as not needed by the respondents with 50 percent or more providing negative responses was the physical arrangement of the classroom. This response is understandable, as many community college faculty members would not be allowed to exchange rooms or potentially move furniture in order to accommodate students. A computer lab and a science lab are examples of classrooms that may contain furniture that is mounted and impossible to move. A laboratory and a locker room are examples of rooms designed for a specific purpose. But it is important to realize that ASD students may experience more success and less stress when the classroom environment is modified to accommodate their needs. Community college leaders, faculty, and staff must be involved in the process of thinking of students with special needs as new learning spaces are

being designed, furniture is being replaced, and upgrades to classrooms and buildings are taking place.

### **Recommendations for Practitioners and Leaders**

The number of individuals diagnosed with ASD has grown steadily over the past 18 years (ASD, 2018). It is important to society that students from under-served groups participate successfully in postsecondary education. The community college has historically been the leader in serving people from underserved groups. Hence, this study will help community college leaders (vice-presidents of instruction, deans, faculty members, student services staff, and disability services staff) prepare the college faculty and staff to successfully serve these students.

Although ASD students look to community colleges to develop skills and become employed, community colleges have an obligation to not only ensure these students can successfully complete college but can also be employable. Providing these students with opportunities to develop interview skills, obtain part-time work on campuses, participate in internships, and learn the language of the workforce will be a valuable first step. Therefore, this study will help community college leaders (vice-presidents of instruction, vice-presidents of workforce, deans, faculty members, tutors, and support staff) prepare ASD students to be successfully employable.

Community college leaders are saddled with the responsibility of allocating resources for professional development, and this may be the reason many college senior staff allow voluntary participation as opposed to obligatory participation (Brown & Coomes, 2015). But senior leaders, along with other managerial staff, are responsible for putting policies in place that require all faculty members to participate in professional development.

On average community colleges use seven percent of their budgets on faculty and curriculum development (Mullin, Baime, & Honeyman, 2015; Mullin & Phillippe, 2013). Adding additional expenses that are accompanied with required professional development, when budgets are stretched, must be carefully considered (Brown & Coomes, 2015). But, if ASD students are to experience success, the potential benefits of the expense must be considered. Not only should a professional development curriculum be provided, but it must also be continuously assessed to ensure educators can recognize ASD characteristics and can make adjustments that will accommodate ASD students (Moriña & Carballo, 2017; Zeedyk et al., 2016). Moreover, faculty members overwhelmingly noted the desire for professional development related to ASD in this study. It is time for presidents, senior staff, managerial staff, and faculty members to take note of this call for help and act. This study will provide guidance for the content of professional development programs for faculty members related to ASD students.

Community college leaders and faculty members need researchers who can examine the needs of ASD students. There is a need for empirical research that acquaints community college officials with the best pedagogical practices and strategies to support ASD students. There is a specific need for empirical examination of teaching practices for the distinctive curriculum at the community college. The current study, and the instrument developed, will provide important information to help fill the gap in the literature exclusive to community colleges.

Unique orientation classes, Student Development (SDV), are currently being offered to various student groups such as nursing students, veterans, and first-generation students in the Virginia Community College System. In this same manner, community college leaders, student service leaders, and counselors may consider offering a course that is customized for ASD students. This customized course may focus on needs specific to ASD students such as

developing and implementing college appropriate communication strategies, organization strategies, group work approaches, and social skills. Focusing on methods that will allow ASD students to practice and improve in areas where they are generally weak will not only help these students develop confidence but will help them to experience success.

Many ASD students are successful at the K-12 level, but struggle with the changes to independence and the self-advocating required when entering higher education. Collaboration between leaders in K-12 and community college to provide a smooth transition from one institution to the next may require the development of a plan to get ASD students on campus. This plan may ensure ASD students visit a community college campus several times while still in high school to ease the transition.

Although the number of ASD students enrolling at the community college is increasing, leaders are tasked with ensuring success for this unique population. Community college leaders may use this instrument, established and tested in a population consisting of exclusively community college faculty members, to ensure ASD student success. As faculty members are evaluated by the instrument and supported through professional development, they gain awareness of the characteristics of ASD and the pedagogical practices necessary to support ASD students in the classroom. When ASD students are supported with appropriate classroom pedagogical practices they will experience success.

Finally, researchers who focus on community college students, need to conduct more studies on ASD student success in order to provide the data that decision-makers at community colleges need. This study will provide information to help fill the gap in the literature on ASD student success at community colleges.



## **Recommendations for Further Research**

More research is needed regarding ASD students at the community college level, where the emphasis is on teaching and learning. Rural community colleges were used in this survey due to the researcher's connections with those at other rural institutions, but urban and suburban community colleges should be included in the future to gain a more complete picture of faculty members knowledge of ASD, recognition of ASD, pedagogical practices, and professional development preferences to support ASD students. Not only should urban and suburban areas be included, but regions across the United States should be included as this study was exclusive to Virginia.

Adding additional pedagogical items to the questionnaire may also be advantageous to the study as it is important to note that the items in this study focused on universal design for learning (UDL). The added items may address topics such as where (locations or persons) faculty members may refer for support of classroom management and instructional strategies to aid the ASD student. These suggestions were the most highly requested items from the professional development section of the current study.

Following the recommendation from McKeon, Alpern, and Zager (2013), a question was added to the current study requesting that faculty members report their academic cluster by choosing one of five groupings. In future studies, it may be advantageous to either add more than five levels for academic cluster or include an open-ended question asking faculty to report their specific area of discipline. The addition of this question may be particularly helpful in pinpointing key academic disciplines where faculty members need the most support.

Finally, conducting a longitudinal study may provide a more complete data set on faculty members' attitudes toward ASD students and their knowledge of ASD students. This

longitudinal study may be accomplished by adding qualitative questions to the survey or conducting a qualitative study to capture richer, more in-depth data.

## **Conclusion**

Community college leaders and faculty members have an obligation to ASD students who have low rates of college completion (Gobbo & Shmulsky, 2014; Shattuck, Narendorf, Cooper, Sterzing, Wagner, & Taylor, 2012) to ensure supports are in place so that these students may complete college successfully. But the current study indicates part-time community college faculty members have much to learn to match the pedagogical practices of their full-time colleagues. Since the number of individuals diagnosed with ASD has now increased to one in 59 (ASD, 2018) - coupled with the knowledge that at least 80 percent of ASD individuals who attend college will attend a community college at some point in their lifetime (Wei, Christiano, Yu, Blackorby, Shattuck, & Newman, 2014) - it is urgent that college presidents act swiftly so faculty members are equipped to address the needs of this unique population. Murray, Lombardi, Wren, and Keys (2009) found faculty members are more willing to provide accommodations and support for students with learning disabilities when they had participated in previous training compared to those who had not participated. Community colleges should be “student-ready” institutions adept at helping students complete a degree, credential, or certificate (Mullin, 2017). Community college leaders as well as faculty and staff members have an ethical obligation to get ASD individuals on the pathway to success in college. These students will find success if they are provided with the necessary supports.

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## **APPENDIX A**

### **College Vice-President Letter**

Dear College Vice President,

According to the Center for Disease Control and Prevention, the number of individuals diagnosed with Autism Spectrum Disorder (ASD) has increased to 1 in 59. Because of the many supports available in the K-12 environment, these students are successfully completing high school, and many are pursuing a community college education. Additionally, 80 percent of ASD college individuals will attend a community college during their lifetime.

However, research shows ASD students have lower rates of college completion than all other students except those with significant intellectual disabilities. Moreover, research also shows faculty involvement is the single most critical element for academic success for community college students. It is urgent that faculty recognize and assist these ASD students.

I am writing to request your assistance in furthering the research of ASD students in the community college classroom. Would you please help by sending out a request to your full-time and part-time faculty to complete a survey in late September? You will be asked to send a follow-up reminder about ten days after the first communication. I created the survey as part of my doctoral research at Old Dominion University. Based on a pilot test, I estimate that it will take faculty members less than 10 minutes to complete, but that amount of time could contribute significantly to a study that could prove to be of great benefit to ASD students and our colleges.

Attached are drafts of the two emails that will be sent out the end of September and fourteen days later. I will send the official copies of the emails and exact dates the survey is to be conducted in late September 2019. Of course, if you are interested in the outcomes of the study, I would be pleased to send you a summary of the findings.

Thank you,

Pamela Hanks  
Graduate Student  
Old Dominion University

## APPENDIX B

### Participant Letter

Dear Faculty Member,

The community college has seen a significant increase in enrollment of students with disabilities and there is a real need to improve this population's success to complete courses, credentials, and degrees. To assist in advancing teaching and research, professors in the Virginia Community College System are needed to complete a questionnaire. Your participation is vital to capture comprehensive data and provide a path for continued research.

The questionnaire will require less than 10 minutes to complete, and the link to access the questionnaire is listed at the bottom of the page. There is no known risk for responding to this questionnaire. Only participants from your college will be entered for a drawing to win a **\$100 Amazon Gift Card**, as compensation for responding to this questionnaire. Additionally, each participant will be provided with a pamphlet containing best practices for classroom instruction and management based on peer reviewed research and the outcomes of this study. You will be entered for the drawing and receipt of the pamphlet when you select the separate link listed at the end of the survey and provide contact information. If you decide to participate, please answer all questions.

Participation in the questionnaire is strictly voluntary, and you may decide to stop at any time. Your responses will be confidential, and your identity will not be linked to your responses. All responses will be compiled and analyzed collectively. Finally, this study has been approved by Mitchell Williams Ph.D., Chair of the Dissertation Committee and Laura Chezan, Ph.D., Chair of the Institutional Review Board Old Dominion University.

I appreciate your consideration and time to complete the questionnaire. If you have questions or concerns, please contact Pam Hanks at 540-674-3600 or phanks@nr.edu. Thank you for completing the questionnaire.

Sincerely,

Pamela Hanks  
Graduate Student  
Old Dominion University

**Please Click Here to Begin the Survey**

## APPENDIX C

### Participant Follow-up Letter

Dear Faculty Member,

Fall is a busy time for faculty members, and I certainly understand the value of every extra minute throughout the semester. I hope that you will take about 10 minutes to complete a questionnaire and advance teaching and research, for students with disabilities in community colleges.

If you have already completed the questionnaire thank you very much, your participation is very important. If not, the link to access the questionnaire is listed at the bottom of the page. The questionnaire will end Tuesday October 8 and your response is vital to capture a comprehensive picture from professors in the Virginia Community College System.

Only participants from your college will be entered for a drawing to win a **\$100 Amazon Gift Card**, as compensation for responding to this questionnaire. Additionally, each participant will be provided with a pamphlet containing best practices for classroom instruction and management based on peer reviewed research and the outcomes of this study. You will be entered for the drawing and receipt of the pamphlet when you select the separate link listed at the end of the survey and provide contact information.

I appreciate your consideration and time to complete the questionnaire. If you have questions or concerns, please contact Pam Hanks at 540-674-3600 or phanks@nr.edu. Thank you for completing the questionnaire.

Sincerely,

Pamela Hanks  
Graduate Student  
Old Dominion University

**[Please Click Here to Begin the Survey](#)**

## APPENDIX D

***Knowledge, Instructional Methods, and Preference for Professional Development to Support Autism Spectrum Disorder (ASD) Students at Community Colleges Instrument***

**Question 1:** Please select the box beside your primary area of instruction.

- ☐ **1- Arts, Humanities, and Communication-** Fine Arts (Art, Music, Theater), Graphic Design, and Liberal Arts
- ☐ **2- Business, Management, Marketing and Financial** – Accounting, Administrative Support, Business Administration, and Management
- ☐ **3- Education and Human Services** – Criminal Justice, Early Childhood Development, Education, General Studies, and Police Science
- ☐ **4- Health Sciences** – Health Information Management, Health Science Preparation, Nursing, Nursing Assistant, Pharmacy Technician, and Practical Nursing, Veterinary Sciences, Agriculture, Dental, and Radiology
- ☐ **5- Science, Information Technology, Engineering and Business Technologies–** Automotive, Advanced Manufacturing, Computer and Network Support, Computer Science, Cybersecurity, Electronics and Computer Technology, Electronics Technology, Engineering, Information Systems Technology, and Science

**Questions 2-4:** Please select the option that best describes you.

2. Number of years as a community college faculty member.
  - 0-5 years
  - 6-10 years
  - 11-15 years
  - Over 15 years
3. Gender
  - Male
  - Female
  - Other
4. Are you employed as a full-time or part-time professor?
  - Full-time
  - Part-time

**Questions 5-19:**

Please choose a response that best describes your knowledge of Autism Spectrum Disorder (ASD) characteristics.

***Students with Autism Spectrum Disorder (ASD):***

5. have the cognitive ability to appropriately decode abstract content with little to no assistance from the instructor.
- Disagree                      Not Sure                      Agree



6. display poor executive functioning behaviors.  
(Example: planning, organizing, and following through on tasks)  
Disagree                      Not Sure                      Agree
7. enjoy flexibility and have no issue with changes to their schedules.  
(Example: room changes and order of class instruction)  
Disagree                      Not Sure                      Agree
8. prefer group work affording personal interactions.  
Disagree                      Not Sure                      Agree
9. are consistently organized.  
Disagree                      Not Sure                      Agree
10. prefer the instructors' use of absolute words such as always and never.  
Disagree                      Not Sure                      Agree
11. consistently ask questions.  
Disagree                      Not Sure                      Agree
12. monopolizes classroom discussions.  
Disagree                      Not Sure                      Agree
13. will not shift topics during classroom discussions.  
Disagree                      Not Sure                      Agree
14. have difficulty answering questions in the classroom.  
Disagree                      Not Sure                      Agree

***Students with Autism Spectrum Disorder (ASD) often:***

15. display anxious behaviors.  
Disagree                      Not Sure                      Agree
16. make no eye contact when speaking.  
Disagree                      Not Sure                      Agree
17. employ unusual facial expressions.  
Disagree                      Not Sure                      Agree
18. employ repetitious body gestures such as hand flapping, snapping, or clapping.  
Disagree                      Not Sure                      Agree

19. behave in ways that are indistinguishable from the other students

Disagree

Not Sure

Agree

You are not alone if you do not know much about the characteristics of Autism Spectrum Disorder (ASD). Although individuals with ASD who attend community college usually have average to above average intelligence, they experience social deficits, communication deficits, and behavioral deficits. Because autism is a spectrum disorder, students diagnosed may display a range of abilities and impediments.

**Questions 20-30:** Please select the response that describes your pedagogical practices for the following statements.

20. I follow the same routine in the classroom each day. (Example: attendance, warm-up, discussion, lecture, group work, assignment)

Never

Not Often

Often

Very Often

21. I notify students in advance of a schedule change. (Emergency situations may not allow for advanced notice)

Never

Not Often

Often

Very Often

22. I provide multiple formats for delivery of new content. (Example: lecture, electronic documents, and videos)

Never

Not Often

Often

Very Often

23. I provide multiple formats for students to demonstrate understanding. (Example: written test, verbal test, paper, or project)

Never

Not Often

Often

Very Often

24. I provide multiple formats for engagement in the classroom. (Example: project based curriculum, partnership with local businesses, group work, or individual work)

Never

Not Often

Often

Very Often

25. I provide priority seating for students in the classroom.

Never

Not Often

Often

Very Often

26. I request classroom changes to accommodate students who experience light, smell, and sound sensitivity.

Never

Not Often

Often

Very Often

27. I use sarcasm in the classroom.

Never

Not Often

Often

Very Often

28. I use humor in the classroom.

Never

Not Often

Often

Very Often

29. I use idioms in the classroom. (Example: I put my foot in my mouth)

Never

Not Often

Often

Very Often

30. I use absolute language when addressing the class.

Never

Not Often

Often

Very Often

**Questions 31-40:** Please select your preferences for perceived professional development to best support Autism Spectrum Disorder (ASD) students by responding to the following statements.

*I would prefer professional development related to ASD to focus on:*

31. how accommodations students have in K-12 school change when transitioning to college.

Strongly Disagree      Disagree      Agree      Strongly Agree

32. how to recognize communication patterns.

Strongly Disagree      Disagree      Agree      Strongly Agree

33. how to recognize non-verbal behaviors.

Strongly Disagree      Disagree      Agree      Strongly Agree

34. where to refer for support.

Strongly Disagree      Disagree      Agree      Strongly Agree

35. federal law requirements that mandate professors provide academic support for students with disabilities.

Strongly Disagree      Disagree      Agree      Strongly Agree

36. classroom instructional strategies to aid ASD students.

Strongly Disagree      Disagree      Agree      Strongly Agree

37. classroom management strategies to aid ASD students.

Strongly Disagree      Disagree      Agree      Strongly Agree

38. physical arrangement of the classroom environment.

Strongly Disagree      Disagree      Agree      Strongly Agree

39. best use of language during instruction.

Strongly Disagree      Disagree      Agree      Strongly Agree

40. delivery of feedback.

Strongly Disagree      Disagree      Agree      Strongly Agree

**Question 41:** Please select the option that best describes you

41. I recognize a student with Autism Spectrum Disorder when he or she is enrolled in my community college class.

Disagree      Not Sure      Agree

## APPENDIX E

### Letter to Panel of Experts

Dear Expert Group Member,

Thank you for agreeing to analyze the survey designed for community college faculty members to provide feedback on their experiences with Autism Spectrum Disorder Students (ASD). The purpose statement and research questions are listed below along with the blueprint used to construct the survey. A paper copy of the survey is attached for you to provide comments and suggestions for changes to the survey. In each section, I will note what it is that I am trying to measure. Please check that the items measure what is expected. Is there an item that is problematic, not clear, or confusing? Please explain why. Finally, please let me know what I am missing.

The purpose of this study is to explore community college faculty members' knowledge of ASD students and the classroom practices utilized that may provide support for ASD students. This study will also help to advance the understanding of the type of professional development most effective to improve ASD students' success in college as perceived by community college faculty members. Academic clusters will be evaluated to determine if differences exist in ASD recognition, classroom practices, and perceived professional development between certain subgroups of faculty members.

**This study will be guided by the following research questions:**

1. To what extent do faculty members think they recognize students with ASD in their classrooms?
2. What pedagogical practices do community college faculty members utilize that may support ASD students?
3. What type of professional development do community college faculty members perceive may best help them to support ASD students?
4. How do faculty members differ in their ASD recognition, classroom practices, and professional development preferences based on gender, years of experience, and academic discipline?

**Questionnaire Blueprint for Instructors of ASD Students**

	Knowledge	Pedagogical Practices
Characteristics of ASD students	5-9	20-26
Communication patterns	10-14	27-30
Non-verbal behaviors	15-19	
Professional development	31-35	36-40

Please return all evaluation documents to me within 5 business days. You may scan the documents and email to me, deliver personally, or call and I will be happy to stop by and pick up the documents. Again, thank you very much for your expertise in evaluating this instrument and your willingness to help improve ASD students' success in community college.

Thank you,

Pamela Hanks  
Graduate Student  
Old Dominion University

## APPENDIX F

### **Expert Review of: *Knowledge, Instructional Methods, and Preference for Professional Development to Support Autism Spectrum Disorder (ASD) Students at Community Colleges*** **Instrument**

**Question 1:** Please select the box beside your primary area of instruction.

- ☐ **1- Arts, Humanities, and Communication-** Fine Arts (Art, Music, Theater), Graphic Design, and Liberal Arts
- ☐ **2- Business, Management, Marketing and Financial** – Accounting, Administrative Support, Business Administration, and Management
- ☐ **3- Education and Human Services** – Criminal Justice, Early Childhood Development, Education, General Studies, and Police Science
- ☐ **4- Health Sciences** – Health Information Management, Health Science Preparation, Nursing, Nursing Assistant, Pharmacy Technician, and Practical Nursing, Veterinary Sciences, Agriculture, Dental, and Radiology
- ☐ **5- Science, Information Technology, Engineering and Business Technologies–** Automotive, Advanced Manufacturing, Computer and Network Support, Computer Science, Cybersecurity, Electronics and Computer Technology, Electronics Technology, Engineering, Information Systems Technology, and Science

**Questions 2-4:** Please select the option that best describes you.

2. Number of years as a community college faculty member.

- 0-5 years
- 6-10 years
- 11-15 years
- Over 15 years

3. Gender

- Male
- Female
- Other

4. Are you employed as a full-time or part-time professor?

- Full-time
- Part-time

#### **Questions 5-19:**

Please choose a response that best describes your knowledge of Autism Spectrum Disorder (ASD) characteristics.

**Recognition: Characteristics-**Please check that the items measure what is expected. Is there an item that is problematic, not clear, or confusing? Please explain why. Finally, please let me know what I am missing.

### *Students with ASD:*

5. have the cognitive ability to appropriately decode abstract content with little to no assistance from the instructor.

Disagree                      Not Sure                      Agree

6. display poor executive functioning behaviors.  
(Example: planning, organizing, and following through on tasks).

Disagree                      Not Sure                      Agree

7. enjoy flexibility and have no issue with changes to their schedules. (Example: room changes and order of class instruction).

Disagree                      Not Sure                      Agree

8. prefer group work affording personal interactions.

Disagree                      Not Sure                      Agree

9. are consistently organized.

Disagree                      Not Sure                      Agree

**Characteristics: Communication Patterns**-Please check that the items measure what is expected. Is there an item that is problematic, not clear, or confusing? Please explain why. Finally, please let me know what I am missing.

10. prefer the instructors' use of absolute words such as always and never.

Disagree                      Not Sure                      Agree

11. consistently asks questions.

Disagree                      Not Sure                      Agree

12. monopolizes classroom discussions.

Disagree                      Not Sure                      Agree

13. will not shift topics during classroom discussions.

Disagree                      Not Sure                      Agree

14. has difficulty answering questions in the classroom.

Disagree                      Not Sure                      Agree

**Characteristics: Non-Verbal Behaviors**-Please check that the items measure what is expected. Is there an item that is problematic, not clear, or confusing? Please explain why. Finally, please let me know what I am missing.

***Students with Autism Spectrum Disorder (ASD) often:***

15. display anxious behaviors.

Disagree                      Not Sure                      Agree

16. make no eye contact when speaking.

Disagree                      Not Sure                      Agree





26. I request classroom changes to accommodate students who experience light, smell, and sound sensitivity.

Never                      Not Often                      Often                      Very Often

**Pedagogical Practices: Communication-**Please check that the items measure what is expected. Is there an item that is problematic, not clear, or confusing? Please explain why. Finally, please let me know what I am missing.

27. I use sarcasm in the classroom.

Never                      Not Often                      Often                      Very Often

28. I use humor in the classroom.

Never                      Not Often                      Often                      Very Often

29. I use idioms in the classroom. (Example: I put my foot in my mouth)

Never                      Not Often                      Often                      Very Often

30. I use absolute language when addressing the class.

Never                      Not Often                      Often                      Very Often

**Questions 31-40:** Please select your preferences for perceived professional development to best support Autism Spectrum Disorder (ASD) students by responding to the following statements.

**Professional Development: Knowledge-**Please check that the items measure what is expected. Is there an item that is problematic, not clear, or confusing? Please explain why. Finally, please let me know what I am missing.

*I would prefer professional development related to ASD to focus on:*

31. how accommodations students have in K-12 school changes when transitioning to college.

Strongly Disagree      Disagree                      Agree                      Strongly Agree

32. how to recognize communication patterns.

Strongly Disagree      Disagree                      Agree                      Strongly Agree

33. how to recognize non-verbal behaviors.

Strongly Disagree      Disagree                      Agree                      Strongly Agree

34. where to refer for support.

Strongly Disagree      Disagree                      Agree                      Strongly Agree

35. federal law requirements that mandate professors provide academic support for students with disabilities.

Strongly Disagree      Disagree                      Agree                      Strongly Agree

**Professional Development: Pedagogical Practices-**Please check that the items measure what is expected. Is there an item that is problematic, not clear, or confusing? Please explain why. Finally, please let me know what I am missing.

36. classroom instructional strategies to aid ASD students.

Strongly Disagree      Disagree      Agree      Strongly Agree

37. classroom management strategies to aid ASD students.

Strongly Disagree      Disagree      Agree      Strongly Agree

38. physical arrangement of the classroom environment.

Strongly Disagree      Disagree      Agree      Strongly Agree

39. best use of language during instruction.

Strongly Disagree      Disagree      Agree      Strongly Agree

40. delivery of feedback.

Strongly Disagree      Disagree      Agree      Strongly Agree

**Question 41:** Please select the option that best describes you

41. I recognize a student with Autism Spectrum Disorder when he or she is enrolled in my community college class.

Disagree      Not Sure      Agree

## APPENDIX G

**Final Instrument: *Knowledge, Instructional Methods, and Preference for Professional Development to Support Autism Spectrum Disorder (ASD) Students at Community Colleges***  
**Instrument**

**Question 1:** Please select the box beside your primary area of instruction.

- ☐ **1- Arts, Humanities, and Communication-** Fine Arts (Art, Music, Theater), Graphic Design, and Liberal Arts
- ☐ **2- Business, Management, Marketing and Financial** – Accounting, Administrative Support, Business Administration, and Management
- ☐ **3- Education and Human Services** – Criminal Justice, Early Childhood Development, Education, General Studies, and Police Science
- ☐ **4- Health Sciences** – Health Information Management, Health Science Preparation, Nursing, Nursing Assistant, Pharmacy Technician, and Practical Nursing, Veterinary Sciences, Agriculture, Dental, and Radiology
- ☐ **5- Science, Information Technology, Engineering and Business Technologies–** Automotive, Advanced Manufacturing, Computer and Network Support, Computer Science, Cybersecurity, Electronics and Computer Technology, Electronics Technology, Engineering, Information Systems Technology, and Science

**Questions 2-4:** Please select the option that best describes you.

2. Number of years as a community college faculty member.
  - 0-5 years
  - 6-10 years
  - 11-15 years
  - Over 15 years
3. Gender
  - Male
  - Female
  - Other
4. Are you employed as a full-time or part-time professor?
  - Full-time
  - Part-time

### Questions 5-15:

Please choose a response that best describes your knowledge of Autism Spectrum Disorder (ASD) characteristics.

***Students with Autism Spectrum Disorder (ASD):***

5. have the cognitive ability to appropriately decode abstract content with little to no assistance from the instructor.
- Disagree                      Not Sure                      Agree

6. display poor executive functioning behaviors.  
(Example: planning, organizing, and following through on tasks)  
Disagree                      Not Sure                      Agree
7. enjoy flexibility and have no issue with changes to their schedules.  
(Example: room changes and order of class instruction)  
Disagree                      Not Sure                      Agree
8. prefer group work affording personal interactions.  
Disagree                      Not Sure                      Agree
9. are consistently organized.  
Disagree                      Not Sure                      Agree
10. have difficulty answering questions in the classroom.  
Disagree                      Not Sure                      Agree

***Students with Autism Spectrum Disorder (ASD) often:***

11. display anxious behaviors.  
Disagree                      Not Sure                      Agree
12. make no eye contact when speaking.  
Disagree                      Not Sure                      Agree
13. employ unusual facial expressions.  
Disagree                      Not Sure                      Agree
14. employ repetitious body gestures such as hand flapping, snapping, or clapping.  
Disagree                      Not Sure                      Agree
15. behave in ways that are indistinguishable from the other students  
Disagree                      Not Sure                      Agree

You are not alone if you do not know much about the characteristics of Autism Spectrum Disorder (ASD). Although individuals with ASD who attend community college usually have average to above average intelligence, they experience social deficits, communication deficits, and behavioral deficits. Because autism is a spectrum disorder, students diagnosed may display a range of abilities and impediments.

**Questions 16-19:** Please select the response that describes your pedagogical practices for the following statements.

- |  |       |           |       |            |
|--|-------|-----------|-------|------------|
| 16. I notify students in advance of a schedule change. (Emergency situations may not allow for advanced notice)  | Never | Not Often | Often | Very Often |
| 17. I provide multiple formats for delivery of new content. (Example: lecture, electronic documents, and videos)   | Never | Not Often | Often | Very Often |
| 18. I provide multiple formats for students to demonstrate understanding. (Example: written test, verbal test, paper, or project)                                      | Never | Not Often | Often | Very Often |
| 19. I provide multiple formats for engagement in the classroom. (Example: project based curriculum, partnership with local businesses, group work, or individual work) | Never | Not Often | Often | Very Often |

**Questions 20-29:** Please select your preferences for perceived professional development to best support Autism Spectrum Disorder (ASD) students by responding to the following statements.

*I would prefer professional development related to ASD to focus on:*

- |   |                   |          |       |                |
|---|-------------------|----------|-------|----------------|
| 20. how accommodations students have in K-12 school change when transitioning to college.                     | Strongly Disagree | Disagree | Agree | Strongly Agree |
| 21. how to recognize communication patterns.  | Strongly Disagree | Disagree | Agree | Strongly Agree |
| 22. how to recognize non-verbal behaviors.  | Strongly Disagree | Disagree | Agree | Strongly Agree |
| 23. where to refer for support.   | Strongly Disagree | Disagree | Agree | Strongly Agree |
| 24. federal law requirements that mandate professors provide academic support for students with disabilities. | Strongly Disagree | Disagree | Agree | Strongly Agree |
| 25. classroom instructional strategies to aid ASD students.   | Strongly Disagree | Disagree | Agree | Strongly Agree |

26. classroom management strategies to aid ASD students.

Strongly Disagree      Disagree      Agree      Strongly Agree

27. physical arrangement of the classroom environment.

Strongly Disagree      Disagree      Agree      Strongly Agree

28. best use of language during instruction.

Strongly Disagree      Disagree      Agree      Strongly Agree

29. delivery of feedback.

Strongly Disagree      Disagree      Agree      Strongly Agree

**Question 30:** Please select the option that best describes you

30. I recognize a student with Autism Spectrum Disorder when he or she is enrolled in my community college class.

Disagree      Not Sure      Agree




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**OFFICE OF THE VICE PRESIDENT FOR RESEARCH**


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DATE: September 18, 2019

TO: Mitchell Williams

FROM: Old Dominion University Education Human Subjects Review Committee

PROJECT TITLE: [1491388-1] Autism Spectrum Disorder Students: A  
Survey of Rural Community College Educators

REFERENCE #:

SUBMISSION TYPE: New Project

ACTION: DETERMINATION OF EXEMPT

STATUS DECISION DATE: September 18, 2019

REVIEW CATEGORY: Exemption category # 2

Thank you for your submission of New Project materials for this project. The Old Dominion University Education Human Subjects Review Committee has determined this project is EXEMPT FROM IRB REVIEW according to federal regulations.

We will retain a copy of this correspondence within our records.

If you have any questions, please contact Laura Chezan at (757) 683-7055 or lchezan@odu.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Old Dominion University Education Human Subjects Review Committee's records.

## **VITA**

Pamela Love Hanks

### **Education**

- Ph.D., Community College Leadership, Old Dominion University, 2020
- M.S., Instructional Design and Technology, Emporia State University, 2007
- B.S., Mathematics, Minor Computer Science, Radford University, 1986

### **Professional Experience**

- Instructional Designer, New River Community College 2011-Current
- Guest Lecturer Investigating Autism Class, University of Virginia, 2019
- Guest Lecturer, Diagnostic and Assessment Procedures for Individuals with Disabilities, Radford University, 2005-Current
- Adjunct Faculty, New River Community College, 2005-2011.
- Instructional Technology Resource Teacher, Pulaski County Schools, 2005-2011
- Mathematics Instructor, Pulaski County Schools, 2002-2005
- Advanced Placement Computer Science and Mathematics Instructor, Rockbridge County Schools, 1999-2002
- Computer Science and Mathematics Instructor, Bedford County Schools, 1992-1999
- Elementary Computer Coordinator, Bedford County Schools, 1990-1992
- Computer Science and Mathematics Instructor, Franklin County Schools, 1986-1990
- Programming Assistant, Mohawk Tire Company, 1985

### **Professional Service**

- New River Community College, SACSCOC Academic Programs Team, 2016-Current
- New River Community College, Co-Chair Student Activities Committee, 2016-Current



## Professional Presentations

- Hanks, J., & Hanks, P. (April 2017). *This Feels Like a Class! Creating Student Engagement Online*, Presented at VCCS New Horizons Conference, Roanoke, VA
- Hanks, P., & Hanks, K. (September 2016). *Asperger's and College Success*, Presented at Southwest Virginia Regional Center for Teaching Excellence, Dublin, VA
- Hanks, P. (April 2016). *They Can Run but They Can't Hide – Collaborate Ultra*, Presented at VCCS New Horizons Conference, Roanoke, VA
- Howlett, L., Hanks, K., Shelton, J., Dunn, P., & Hanks, P. (April 2016). *Asperger's Syndrome: Open forum – Quiz the Experts*, Presented at VCCS New Horizons Conference, Roanoke, VA
- Cash, P., Hanks, J., Tolbert-Hurysz, S., Hanks, P., & Dunn, P. (April 2015). *Making the Most of the MOOC (Massive Open Online Course)*, Presented at VCCS New Horizons Conference, Roanoke, VA
- Hanks, J., Cash, P., Tolbert-Hurysz, S., & Hanks, P. (April 2015). *Scaling the Toughest Projects with Basecamp*, Presented at VCC New Horizons Conference, Roanoke, VA

## Awards

- Recipient of the Poindexter Award, Outstanding Community College Leadership Doctoral Student, May 2020, Old Dominion University, Norfolk, VA